

The CHILDREN'S NEWSPAPER

AND CHILDREN'S PICTORIAL

The Story of the World Today for the Men and Women of Tomorrow

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CAN WE SEE A MOON IN THE MAKING?

FRENCHMAN'S GREAT DISCOVERY

PEERING INTO THE EARTH'S CRUST

Marvellous Instrument that Sees 1000 Miles Away

SHALL WE KNOW WHERE THE FOSSILS LIE?

One of the most amazing discoveries that science has yet made is claimed by two Frenchmen, Dr. Henri Moineau and M. Regis, who declare that they are able, with a special apparatus, to detect petrol, not only in the ground under their feet, but hundreds, and even thousands, of miles away.

Such a claim would seem to be merely wild imagination, but in tests already made the wonderful apparatus has justified the claim. Sitting at Clermont-Ferrand, in the Auvergne district of Central France, M. Regis was able to detect and delimit an oil area in Alsace, 300 miles away.

Wireless Waves Sink in the Ground

From the same position he has also detected oil fields in Saxony, Hanover, Czecho-Slovakia, Italy, Sardinia, Corsica, and Sicily. Then, encouraged by success in areas only hundreds of miles away in Europe, the scientist became more ambitious for his apparatus, and oil sources were located in the Rocky Mountains and the Alleghanies and the Andes in America.

This almost incredible marvel is accomplished, the French scientists tell us, by utilising the Hertzian waves, which are really electro-magnetic waves of small wave length.

Such waves passing by wireless over the earth's surface have a tendency to sink more or less in the ground when the soil they are passing over is very dry or the rocks are otherwise bad conductors.

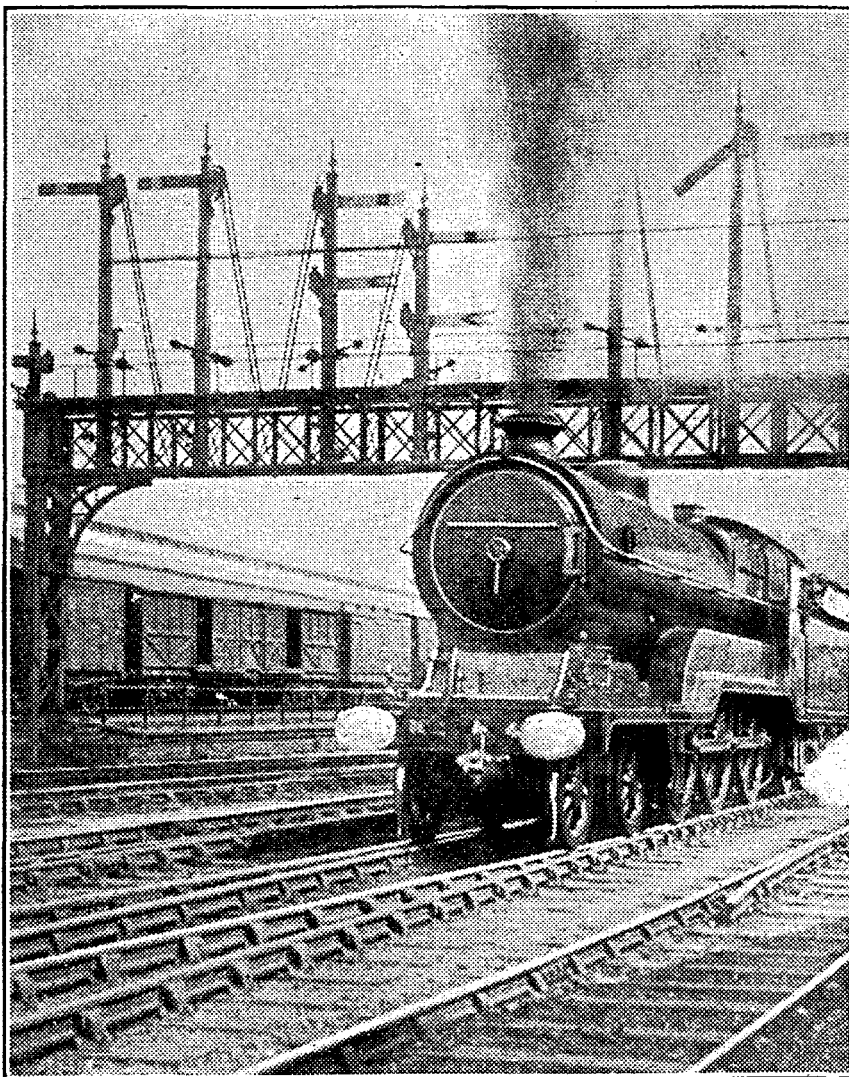
Men using wireless discovered this fact some time ago by the great loss of energy that took place when short waves were used. On longer waves being substituted in their messages the signals were received without any appreciable weakening. It was therefore supposed that the lower part of the waves must be absorbed by the ground.

Mapping out the World's Oil Fields

Hertz himself found that wireless waves were affected in different ways by the various substances over which they passed. Probably, therefore, M. Regis and his colleague, though they give no particulars of their method and apparatus, have developed the idea already suggested by Hertz and others, and have obtained the startling results mentioned by noting systematically the effect upon the waves of the different substances in the crust of the earth.

It is stated that not only oil, but coal and other minerals, water and other liquids, and even gases can be detected

Well-Known Sight that May Disappear



There is no sight in Great Britain more familiar than the railway signal with its projecting arm, or semaphore, that moves up and down; but before long this may disappear altogether from the landscape, and a photograph like this be impossible to take. See next column

and located at great distances by the new apparatus, and French men of science are suggesting that when such supplies have been indicated, X-ray photographs taken from the air over the specified areas will show which are the best spots for making borings. Experimental attempts to use X-rays for similar purposes in mining engineering have been made for some years past, though without achieving any very general success.

This marvellous new apparatus, if it proves to do all that is claimed for it, opens out a wonderful vista of possibilities for the future. Will it at no very distant date be possible for us, by means of the instrument and the X-rays, to look into the crust of the earth and see where new and rare fossils are waiting to be dug up?

We may yet be able to secure complete remains of the past life of the globe. At present we find our fossils more or less by chance.

Buried treasure, too, may be detected by its means. Those who know India well say that during the past centuries millions of pounds' worth of gold have been buried to hide it from thieves and invaders, and owing to the death of the

owner have remained hidden. Now they may be revealed by the Frenchman's marvellous eye.

Another possibility suggested by the discovery is that all the oil fields of the world may be mapped out and divided up scientifically and fairly for allotment among the nations before a well is sunk or a pint of oil brought up.

LOCKED UP IN A TUBE

Early one morning recently a policeman on duty in Paris heard muffled cries which seemed to come from below the pavement on which he was walking.

He thought at first burglars must be in the cellar of a house. But the cries continued, and seemed to be cries for help. So he called other policemen and made investigations, with the result that the Metropolitan Underground Railway was found to run under the spot. They went down the stairs leading to the nearest station, got the doors unlocked, and released a magistrate who, with six other people, had been locked in.

They had been passengers by the last train the night before, and had not been quick enough in getting off the platform before the lights were put out and the doors locked by the porters.

FAMILIAR SIGHT THAT MAY PASS AWAY

RAILWAY SIGNALS MAY GO

Coloured Lamps to take the Place of Semaphores

SUCCESSFUL EXPERIMENT

The British railway companies are thinking of introducing a new method of signalling, which is considered far safer than the one now in use, and very soon there may disappear from our landscape one of its most familiar sights.

It is doubtful if there is any object better known or more easily recognised than a railway signal, but now it is proposed to abolish these signals, or semaphores as they are called, and substitute for them a system of coloured lights for use by day as well as by night.

A committee of experts appointed by the Ministry of Transport has been making tests with the new system and has reported unanimously in favour of its adoption. The lights can be seen easily for a distance of a thousand yards, even in the brightest sunshine, and on the Liverpool Overhead Electric Railway, where the system has been introduced, it has proved an unqualified success. An experimental light was also introduced at Wimbledon on the London and South Western Railway, and passed every test.

Safety First

The committee has reported that in every way the new plan is an improvement on the old. Not only is it much safer: it is also much cheaper.

Anything that makes for safety in travel is to be desired, yet the disappearance of so friendly and familiar an object as the semaphore railway signal must cause a good deal of regret. When we are walking in the country and lose our way it is always cheering to see in the distance a railway signal, for we know the railway must lead somewhere.

This semaphore signal, that will probably soon be a thing of the past, originated in 1842, exactly eighty years ago. Before that time all kinds of queer devices had been tried.

Bonfire as a Signal

For several years the only signal on the Stockton and Hartlepool line was a candle in a window of each station.

The Liverpool and Manchester Railway had none for several years, and then a signal for night use only was introduced, consisting of a red and white light on a pole. Later, a flag was run up and down the pole on a rope by day.

On the North-Eastern Railway at night there was no signal, but a bonfire was lighted at the station, so that an engine-driver might see by its glare if there were another train in the way.

With the introduction of the semaphore signalling system of the country was standardised. It has worked well, and if the new system can beat it it must be almost perfect. *Picture on this page*

WHY EUROPE WAS FROSTBOUND

WINDS THAT BRING BAD WEATHER

The Meaning of Cyclone and Anti-Cyclone

SNOW FALLS IN ITALY

By Our Weather Correspondent

The C.N. Weather Maps for the early part of February show that Europe was under the spell of an anti-cyclone, which dominated the weather conditions.

An anti-cyclone is the opposite of a cyclone, or depression, the scientific name for the condition which brings rain and usually mild weather.

In a cyclone there is a centre of low air pressure, where the barometer gives low readings, and all round this centre in every direction the pressure increases.

Winds blow in a spiral fashion round the centre, their direction being opposite to that of the hands of a watch. In an anti-cyclone the central part is an area of high air-pressure, and the pressure gets less all around. Winds in an anti-cyclone also blow in a spiral fashion round the centre, but in this case they blow in the same direction as the hands of a watch move.

Sky Freed from Cloud

At all times of the year cyclones bring bad weather—wet, cloudy, and often very windy. The weather in an anti-cyclone is commonly fine; in summer it is often hot and calm, but in winter anti-cyclones usually bring severe frost.

The reason for this is that in an anti-cyclone the air is descending from the upper layers of the atmosphere toward the earth. In doing so it becomes a good deal warmer and very much drier. Its dryness makes the air clear and the sky free from cloud.

In summer this allows the sun's rays to heat the ground freely, and we have hot weather, but in winter the sun's rays do not give enough heat to warm the ground much. On the other hand, at night, when the sun is not shining, the clear skies allow much heat to escape from the ground, so that it becomes colder and colder.

Cause of Mist and Fog

Nature has an interesting way of trying to check these changes of temperature. In summer, if the air becomes unduly hot, columns of hot air rise upwards and form thunder clouds, as we may often see on a summer day.

These clouds check the heat coming from the sun, and in some cases pour a cooling rain on the parched earth. In winter, on the other hand, the need is to prevent the ground from becoming too cold.

Now, anti-cyclonic conditions such as we have seen produce great cold are exactly the same as the conditions which give rise to mist and fog. Mist and fog are formed by the chilling of the surface layers of the air by contact with the cold ground. The mist forms a sort of blanket, which prevents heat from escaping from the ground, and thus limits the severity of the frost.

Cold Winds from the East

The anti-cyclone which brought the frost of early February lay in Central Europe. Consequently, the winds in the south of Europe were from the east, and very exceptional cold and snow were experienced in Italy.

Switzerland, also, had great snowfalls, and the places where visitors go for winter sports were crowded.

In England the frost only affected the east of the country, but as we lay on the western side of the anti-cyclone the winds here were southerly and the cold was not severe. The west of the British Isles lay outside the influence of the anti-cyclone, and rainy conditions prevailed.

RARE BIRD COMES TO TOWN

Gadwall Visits the Ducks

LONDON AS A BIRD SANCTUARY

That Londoners have learned to welcome strangers of the bird kingdom, and to leave them unmolested is proved by the settling down of a wild gadwall on the Round Pond in Kensington Gardens.

The gadwall belongs to the duck tribe. It can be distinguished from ordinary ducks by its small head, long, flat back, and perked-up tail.

It is a shy bird; its manner has been described as "skulking." This makes it all the more surprising and gratifying that it should have chosen to stay in a place frequented by so many human beings.

In the country unusual birds or animals are far too often shot by stupid men. In cities they are safer, which explains why the moorhens in London parks do not dive.

Diving is their resource when they are surprised by human beings, and on a country pond or stream they almost always dive when they see or hear men. The London moorhens do not show any fear of man at all.

In Kensington Gardens a few years ago that rare bird, the spotted woodpecker, was seen for more than a week; a kingfisher has lived near the Serpentine; owls can be heard hooting in Hyde Park. It is only men's foolish impulse to kill unfamiliar creatures that has driven so many birds and animals away from the centres of human activity.

Now we see the value and pleasure that can be got from their company, and we are encouraging them to come back among us.

BIG GUNS AS CURIOSITIES

Last Use for a Fighting Ship

In the harbour of Lerwick, in the Shetland Islands, off Scotland, old cannon have been fished up out of a ship which sank there in 1641.

They are being exhibited as curiosities, just as the naval guns which are regarded as such marvels today will be fished up and shown as "funny old things" to our great-grandchildren.

The thought should save us from being too proud of our inventions and improvements.

Whether any more of the warships that are to be scrapped as the result of the Washington Conference will sink with their guns, like the American Dreadnought, has not yet been decided, but from Japan comes a piece of news which strangely blends old and new.

The last duty of one of the Mikado's condemned vessels will be to bring the Empress back from a famous shrine whither she is going to pray to the gods supposed to live there for her husband's restoration to health, and to give thanks for the Crown Prince's safe return from his European tour.

ACRES OF GLASS

Biggest Window-Cleaning Job on Record

"Ten million square feet of windows to clean. How much for the job?"

That is what the Office of Works, which looks after Government offices, has been advertising.

Three or four times a year all the office windows must be cleaned, and firms that undertake this kind of work are asked to tender for it, that is, to say how much they would do it for.

Altogether the panes of glass to be polished in the course of twelve months come to about 10,000,000 square feet, and 100 men are kept busy on them all through the year.

The inventor who can discover how to treat glass so that it would never need cleaning has a great future awaiting him.

THREE ELEPHANTS

Curious Procession in the Streets

WALKING IN SINGLE FILE

A Hampshire correspondent gives a description of what he calls "an incongruous scene," which he once saw on Kew Green; it illustrates the patient obedience of the elephant.

Walking over the green, I saw three elephants coming along the Richmond Road from Kew Bridge, with a keeper in charge. They were walking in single file, and were kept so by the second elephant holding the first elephant's tail with its trunk, and the third elephant holding the second elephant's tail in the same way.

When they reached a public-house the keeper went inside, leaving the three elephants still holding each other by the tail near the edge of the pavement; and as I passed out of sight down the Mortlake Road they were still standing there unattended, quietly awaiting the return of their keeper.

I thought it a remarkable instance of their docility.

JENNY IN THE BARN

Story of a Mouse

A Luton reader gives this account of her tame mouse and its fraternising with its kin.

Jenny was black and white, and had a nice little house on the back of the copper in the scullery.

One day she disappeared through a hole in the box. We thought she was gone for good, but two days later she was sitting on the top of her box waiting to get in it. She was very thirsty and drank eagerly.

Hanging in the barn was an old pair of trousers, and after a time Jenny made her home in one of the pockets. If any of us opened the door and called "Jenny," she would run down the trousers leg and meet us.

By and by she was the mother of several youngsters, and we kept one out of kindness and curiosity. It grew much larger than its mother, and it was great fun to watch Jenny wash her big baby.

Unfortunately, Jenny was killed and eaten by the dog next door. The young one escaped and never came back.

TRICK OF A CAT

How She Got the Milk

Here is a story showing how a cat learned to buy her favourite food in exchange for the products of the chase, and also to obtain it in more cunning ways.

A cat that lives in a lonely country cottage in Hampshire has become an expert hunter, and seems to prefer wild food to the food we give her, with the exception of milk, for which she will do anything.

One day she brought in a full-grown rabbit. Thinking we could train her to catch rabbits for us, we agreed to give her milk every time she brought her capture to us. She soon learned that by bringing a mouse, rat, or rabbit she could get a saucer of milk, and then began to bring mice with great and surprising rapidity.

One day, in picking one up, I realised that it was cold and not freshly caught. Pussy had discovered where we threw them away, and had picked one up to bring back, probably bringing the same mouse over and over again.

A WRECK NEAR THE HOUSES OF PARLIAMENT

A wreck in the Thames at Westminster was an unusual incident which many Members of Parliament watched with great interest the other day.

A barge was carried by the swift current of the river out of its course, and hit one of the piers of Westminster Bridge. This caused it to spring a leak, and at once it began to sink. Police boats rescued the crew of three.

FIERCE BATTLES WITH THE WAVES

LINER'S 28-DAY STRUGGLE IN THE ATLANTIC

Alone in a Lifeboat in Mid-Ocean

BRAVE MEN IN PERIL ON THE SEA

In the gales which, as usual in Spring, have been tearing across the Atlantic Ocean many deeds of courage have been performed, and many mishaps have to be recorded.

A noble example of duty and courage has been given by the chief officer of the Cunard liner Pannonia, which met three fierce hurricanes, one after the other, in mid-Atlantic, and took twenty-eight days to reach New York from England instead of eleven, her usual time.

Battered by the force of the seas, the rudder of the ship was loosened; it was impossible to steer with it. Someone had to go over the stern and make an effort to repair the damage.

A Glorious Failure

Instead of ordering others to undertake this dangerous and difficult task, the chief officer tackled it himself. He took one other man with him, and for two hours they struggled to jam a wire rope round the loose rudder, which was being banged against the ship and seemed likely to make a hole in her.

The icy waves broke over them continuously. They were stiff from cold and half dead from exhaustion. At last they got the rope round the rudder, but just afterwards a huge wave undid their success and flung the officer's assistant against the ship so violently as to make him unconscious.

Two days later the chief officer, with another helper, tried again. This time he narrowly escaped death himself, and was compelled to give up the attempt.

Searching the Sea

Another battle with the waves took place in the Atlantic.

Four sailors on board the British steamship Gaffney were ordered to lash the lifeboat during a storm. There was danger, the captain thought, of its breaking away from the ship's side.

Before they could secure it the fears of the captain were justified. A huge sea broke over the Gaffney and the lifeboat was swept away.

Three men scrambled out, but the fourth, John Birkner, went with the lifeboat into the raging waves.

The Gaffney tried to get near enough to throw him a line, but could not succeed in this. The lifeboat was carried away very quickly and lost sight of.

It was stocked, as lifeboats always are, with food and water, so the castaway would not starve for some time.

Birkner could burn flares at night, for these, also, are stowed away in lifeboat lockers; and there is good hope that he may have been picked up.

Tin Can as a Fog Signal

Ships in a Channel fog heard a strange noise. It was a tin can being beaten. That was the only fog-signal two men named Spicer and Giddens in an open motor-boat could give to save themselves from being run down.

They were making their way from Deal to Southend, and were caught first by heavy seas, then by thick fog. It was bitterly cold, and their oilskins were stiff with ice. Suddenly their engine broke into a blaze, but luckily they had a fire extinguisher, which quickly put out the flames.

Four days and nights they were afloat on the wintry sea so perilous to a small boat. When they arrived their food and water had long been exhausted, and they were half-dead from exposure.

Grace Darling's example still animates the women of Holy Island, where she lived. Several of these brave Northumberland lasses helped to launch the lifeboat recently, wading waist-deep in the surf.

TAKE CARE OF THE PENCE

NATION'S NEED FOR ECONOMY

Most Valuable State Document
Published for a Generation

HOW THE TAXES CAN BE REDUCED

By Our Political Correspondent

All thoughtful people in Great Britain have been considering anxiously the report about the expense of governing this country, drawn up by a committee of which Sir Eric Geddes is the chairman.

That report is described by The Times as "the most valuable State document published for a generation."

The truth is that this country has reached a time when it cannot pay its way if it spends yearly anything like as much money as it has been spending since the war. The country is now arranging for next year's expenses, and if they are not much less than last year's expenses it will not have the money to pay with, though it is dangerously burdened with heavy taxation.

The country's power to pay is greatly lessened by bad trade, and bad trade is largely caused by the enormous taxes the citizens are called on to pay, taxes that use up the money needed for trading.

Spending too Much

The trouble has come about owing to the habit of spending formed during the war, when whatever was needed to win the war had to be bought whatever its cost. Thus a huge debt was built up that will not be paid off for many a year.

Heavy spending, too, could not be stopped at once when the war stopped, for millions of men were soldiers, and could only be brought gradually back into peaceful life. But now we are in the fourth year since the war ceased.

Instead of cutting down expenses and paying our debts, the habit of spending great sums on the government of the country is being continued, and if it is not stopped the country will presently be bankrupt. Its business must be put on a sound footing by the Government when it maps out its expenditure in its next year's accounts, or Budget.

Saving £175,000,000

How can this be done? The usual way is for each Government Department to cut down its expenses to an amount which the Government will allow. But all the Departments are spending enormously more than they spent on the same services before the war, and each Department dislikes to restrict its work and ambition. The Government wished to have the next year's expenses lessened by £175,000,000. The Departments considered what they could do, and stopped short at saving £75,000,000.

Then the Government went outside the Departments for advice, and appointed a committee of five business men accustomed to the management of great paying businesses, like railways and shipping, and put at their head Sir Eric Geddes, a man strong in mind and character, and this committee was asked to say how it would save the money that must be saved.

Great Fight for Economy

Its reply comes in the form of the report that all good citizens are thinking about and that Parliament is discussing.

The Geddes Committee has recommended changes that would save another £75,000,000; and there are further savings yet to come. But most of the Government Departments will make a hard fight against the recommendations of the Geddes Committee, which they will say are in some respects unwise.

The rights and wrongs of these will be fought out in Parliament. It may be that all the advice given by the committee is not good advice, but in some way, by some form of saving, the national expenses must be cut down and afford relief to the taxation that is hampering the country's industries.

WITH THE LAMBS IN THE FIELDS



The lambs with their mothers in the snow



A foster mother feeds her friend



Bringing up a lamb on the bottle



A happy group of lambs in the Isle of Wight



Three little friends go for a walk



Two babies have a jolly time in the straw

This is the season when lambs are to be seen playing with their mothers in the fields all over Great Britain: and these pictures, taken in different parts of the country, show some of the New Year's lambs that are now growing up. See next column

DIGGING OUT THE SHEEP

BUSY TIMES IN THE SCOTTISH HIGHLANDS

Great Britain Dotted all over
with Lambs

HOW THE SHEEP-DOG HELPS HIS MASTER

At present Great Britain is dotted all over with lambs, which may be seen gambolling prettily in the fields with their mothers.

The shepherds always have a very busy time at this season, especially in the Scottish Highlands, where after a night's fall of snow many of the sheep are buried in the drifts and have to be dug out.

The search for the lost flocks is always an urgent and exciting business, and is carried on by means of dogs, which in these remote spots seem to have almost the intelligence of human beings. Some of the Highland sheep-dogs are noted over a whole district for their sagacity, and are in great request after a snow-storm. They are lent by one shepherd to his neighbours for sheep-finding.

Dogs Listen for the Buried Sheep

The moment he is told to seek the lost sheep, with a wag of his tail the dog sets off and carefully examines the snow-drifts. With nose close to the surface of the snow and his ears in a listening attitude he goes backward and forward until at last he scents a buried sheep.

Then he examines every part of the surface with peculiar caution, and, having satisfied himself as to the exact spot in which the sheep lies, he begins scratching away the snow with all his might. The men who accompany him assist.

While all the available dogs are thus engaged in various spots parties of men go off prodding for sheep elsewhere. The shepherds carry shovels and long poles, and, walking in a line, they frequently push their poles through the snow and feel for the missing animals.

Searching in the Snow

An experienced shepherd accustomed to prodding for sheep can easily distinguish by the touch of the pole the woolly coat of a sheep from the heather or moss. As soon as an animal is located the men dig till it is rescued.

This mode of search is extremely slow, and it is only followed to supplement the hunt by dogs.

There is frequent snow in the North of Scotland. Thus Aberdeen has on an average 42 snowy days a year, as against 18 at Oxford. Aberdeen, in fact, has nearly as many snowy days as Iceland.

The amount of moisture that falls as snow is less easily reckoned than in the case of rain, owing to the varying textures of the snow according to temperature. On the average a foot of snow is equal to an inch of rain, and one inch of snow means eight tons of water to an acre.

Forests Buried in Snow

A covering of snow is very warm for the ground, the reason being that mixed with the flakes and particles of snow is much air, and air is a bad conductor of heat, so that the heat cannot escape from the ground into the atmosphere.

It is only at intervals that a really dangerous snowstorm occurs in Great Britain. The most severe on record in modern times took place on January 24, 1794, when snow fell so thickly that daylight was obscured and it was impossible to see more than twenty yards around.

Houses were buried and the search for flocks was dangerous work, as in the glens the snow was so deep that the tops of the forest trees were covered. Seventeen shepherds and hundreds of sheep, including whole flocks, lost their lives; and forty other shepherds who had been buried were only rescued with extreme difficulty in an exhausted and unconscious state.

Pictures on this page

WARMING OUR HOUSES

OLD WAYS AND NEW

Sending a Stream of Warm Air Through the Room

NEEDS OF A LONG WINTER

By a Housing Expert

Our winters are long—and so are our coal bills. How strange it is that in a country that, in proportion to its area, has the finest supply of good coal in the world we should so often find ourselves shivering between October and April, and that most people suffer from what is called a "cold," more or less severe, in that long period of seven months.

The most common way of warming a house in England is by the coal fire, with its accompaniments of labour, smoke, and dirt. Next comes gas heating, which is healthy if properly used.

The coal fire can be greatly improved by using a good slow combustion grate, especially if anthracite, or one of the new smokeless fuels, is employed.

Houses That Remain Cold

All such fires, however, are merely local points of radiation. In houses where they are used the greater part of the house remains cold and cheerless.

Electric radiators form another method of obtaining local heat spots, as we may call them, and they are perfectly healthy because no vapours are generated. Their use is limited, however, by the very high cost of electric current.

Other methods of heating seek to distribute warmth right through the house from a single fire, and these forms are much used in America and Canada.

The most familiar is the use of radiators, which consist of a series of large or small metal tubes. One is placed in each room, hall, or passage, and the whole connected up by pipes, with a low pressure boiler in the basement.

Hot-Water Pipes

The water in this collection of pipes and radiators is heated by a furnace burning either coal, coke, or anthracite. The hot water circulates in the system by what is called convection, the water as it cools descending again to the boiler to be re-heated to rise through the system. This method of heating is undoubtedly effective, but the first cost is high.

Another method of heating, well known in America, has now been introduced here, and seems to be worth consideration. This method dispenses with radiators and water, and merely circulates warmed air throughout the house. A special furnace is placed in the cellar. This fire heats the air in a vessel above it, and from that vessel the warmed air passes through a grating in the ceiling of the cellar to the ground floor of the house.

Circulating the Air

As warm air is lighter, bulk for bulk, than cold air, it rises, spreads through the house, and so warms the whole. It is necessary by this method to keep the doors of the rooms open during a considerable part of the day. When the warm air becomes cool it descends, and passes back through the outer part of the floor grating referred to, to be again warmed and distributed. Thus the air of the home is continually passed through the heating chamber.

So we have many heating methods, but, it is to be feared, very little scientific study of them to decide which is the best to be used for certain conditions. The matter is of really national importance, however, and deserves the attention of everyone.

JUDGE'S MISTAKE

Lawyers Who Cannot Make Their Own Wills

LORD CHANCELLOR FORGETS THE LAW

When people make their wills they usually employ a lawyer to draw up documents in proper legal form. Yet when lawyers make their own wills they often fail altogether to put them into intelligible shape.

After the death of Lord Grimthorpe, a very famous judge, his wishes as to the disposition of his property had to be decided by the Courts because his will had been so badly worded. Lord St. Helier, another judge, left a will that was not at all in order. Two celebrated Lord Chancellors did the same, while another left no will at all.

Now there is another example of this strange disregard of legality on the part of legal celebrities. Lord Halsbury was not only a Lord Chancellor for 17 years; he was editor of a vast legal compendium, known as the Laws of England. He certainly might have been expected to make a will in regular form. Yet he did it so carelessly that there has been difficulty in giving it legal sanction.

Three Faulty Wills

He left among his papers three wills, each written on a piece of notepaper, and the persons who witnessed them had to be called upon to make statements as to the circumstances under which they assisted Lord Halsbury.

Instead of making his intentions perfectly clear, as a distinguished lawyer should have been able to do without any difficulty, he made it difficult to discover what he meant.

Doctors often fail to take precautions which they recommend to their patients; preachers frequently fail to practise what they preach. But that is because human nature makes it easier for us to tell other people what to do than to do it ourselves. The disinclination of lawyers to carry out the law strictly in making wills is a different thing altogether, and harder to understand.

BIGGEST CATCH OF THE SEASON

Net Too Heavy to be Drawn Up

Off Hyères, on the French Riviera, a fishing-boat had its net down and was sailing quietly along when suddenly there was a disturbance which showed that something very big and heavy had been caught in the trawl.

The fishermen tried to pull up the net, but without success. Then, in alarm for the safety of their boat, they tried to cut the net away. They were afraid that the boat would be capsized by the drag of the net on one side.

Before they had managed to free themselves from this danger they saw something dark and big looming up through the water. At first they thought it might be a shark, though sharks would only be found in these waters in very hot weather. Then they saw it had steel sides, and directly afterwards a submarine rose above the surface!

As it rose it very nearly swamped the fishing-boat. As soon as possible the hatches were opened, and the officer in command came out. He was as much astonished as the fishermen. He had felt the pull of the net, and could not think what obstacle the submarine had run into. He decided to rise to the surface and find out; and it was lucky for the fishermen that he did so, for it saved their lives.

Damage to their boat and shock to their nerves made the fishermen glad to accept his offer to tow them into port. There the story of their strange catch caused great amusement.

"But it was not amusing at the time," they said, "Oh, no, not at all!"

DOORS THAT WILL NOT OPEN

Dangers of Unseasoned Wood

MEASURING THE MOISTURE IN TIMBER

Owing to the use of unseasoned timber the window-frames and doors in some new houses built by the Peterborough District Council shrank and warped so badly that in many cases they could not be opened properly. Some of the tenants had to climb through the shrunken windows to push open the twisted doors from the outside.

Furniture-makers and builders never had so much unseasoned wood to deal with as at the present time. This is largely due to the war, when stocks were exhausted without being systematically replaced, and it is necessary that the amount of moisture in the wood should be known if it is to be dried properly in the kiln.

The method of ascertaining this knowledge has just been perfected and is quite simple.

A sample of the wood is placed in a pan on a delicately adjusted balance, and fine sand is poured into a bag at the zero mark on the other side of the scale until the two exactly balance.

The piece of timber is then heated in a kiln until it is bone dry, and is once again placed on the balance. The bag of sand is moved along the scale until both balance once more, and, as the scale is graduated in hundredths, the percentage of moisture is shown by the mark at which the balance is maintained.

UNDERGROUND FIRES

Coal Mine Burns for Sixty-Three Years

Often the coal in our grates will not blaze up as quickly and as cheerfully as we wish, but when vast deposits of coal under the earth catch fire they burn with disastrous persistence.

In the United States a coal mine has been on fire for nearly 63 years. The workings extend for about a mile, and are nearly one-third of a mile wide. How many millions of tons of coal have been destroyed since the fire started in 1859 it is impossible to calculate. More than half a million pounds have been spent by the company which owns the coal upon efforts to check it.

There are hopes now that it may be stopped by the removal of the coal that lies in its path, as a forest fire can be checked by cutting down trees ahead.

Another mine in America has been on fire for 19 years. The ancient trees that have been turned into coal are ready enough to burn beneath the soil!

ROAD AS WAR MEMORIAL

Great Highway Through the Fighting Zone

What better war memorial could there be than a broad and smooth highway running through the districts which saw most of the fighting?

It is proposed that, in memory of the American soldiers who fell in France, the people of the United States should make such a road through French and Belgian territory. Much land could be bought, and work for large numbers would be provided over a long period.

Each State of the American Union might, it is suggested, undertake the planting of trees along a part of the road.

Pronunciations in this Paper

Correggio	Kor-rej-o
Dürer	Du-rer
Hyères	E-air
Geddes	Ged-dez
Mazarin	Mah-zah-ran
Nairobi	Na-ro-be
Vincennes	Van-sen
Watteau	Wah-to

PREPARING TO BE A SCOUT

BOYS OF THE WOLF CUB PACK

When the Zulu Returns from the Jungle

CHIEF SCOUT'S TALK TO CUBS

By Sir Robert Baden-Powell

Young Scouts who are not quite old enough to join the Boy Scouts are called Wolf Cubs.

Why? Because a Wolf Cub is a young Wolf. Scouts are called Wolves, and young Scouts are therefore called Cubs.

In the Far Western prairies of America the Red Indians were a nation of Scouts. Every man in the tribe was a pretty good Scout; nobody thought anything of him if he were not. So there was great rivalry among the young "braves" as to who could be the best Scout. And those who proved themselves best got the nickname of Wolf.

Young Zulu Cubs

There would be Grey Wolf or Black Wolf, Red Wolf, Lean Wolf, and so on, but Wolf was a title of honour, meaning a real good Scout.

The native boys of the Zulu and Swazi tribes learn to be Scouts before they are allowed to be considered men.

When a boy is about 15 or 16 he is taken by the men of his village, stripped of all clothes, and painted white from head to foot. He is given a shield and one assegai, or small spear, and is turned out of the village, and told that he will be killed if anyone catches him while he is still painted white.

So the boy has to go off into the jungle and mountains and hide himself until the white paint wears off.

Hunting for Food

This generally takes about a month, so that all this time he has to look after himself and stalk game with his one assegai, and kill it, and cut it up. He has to light his fire by means of rubbing sticks together in order to cook his meat; he has to make the skin of the animal into a covering for himself; and he has to know what kind of wild roots, berries, and leaves are good for food.

If he is not able to do these things he dies of starvation or is killed by wild animals. If he succeeds in keeping himself alive, and is able to find his way back to the village, he returns when the white paint has worn off, and is then received with great rejoicings by his friends and relations and allowed to become a soldier of the tribe, for he has shown that he is able to look after himself.

But no one is able to do all these things without practice and patience, so that even while you are only the age of a Wolf Cub you should be preparing yourself to become a good Scout later.

How to Know a Wolf Cub

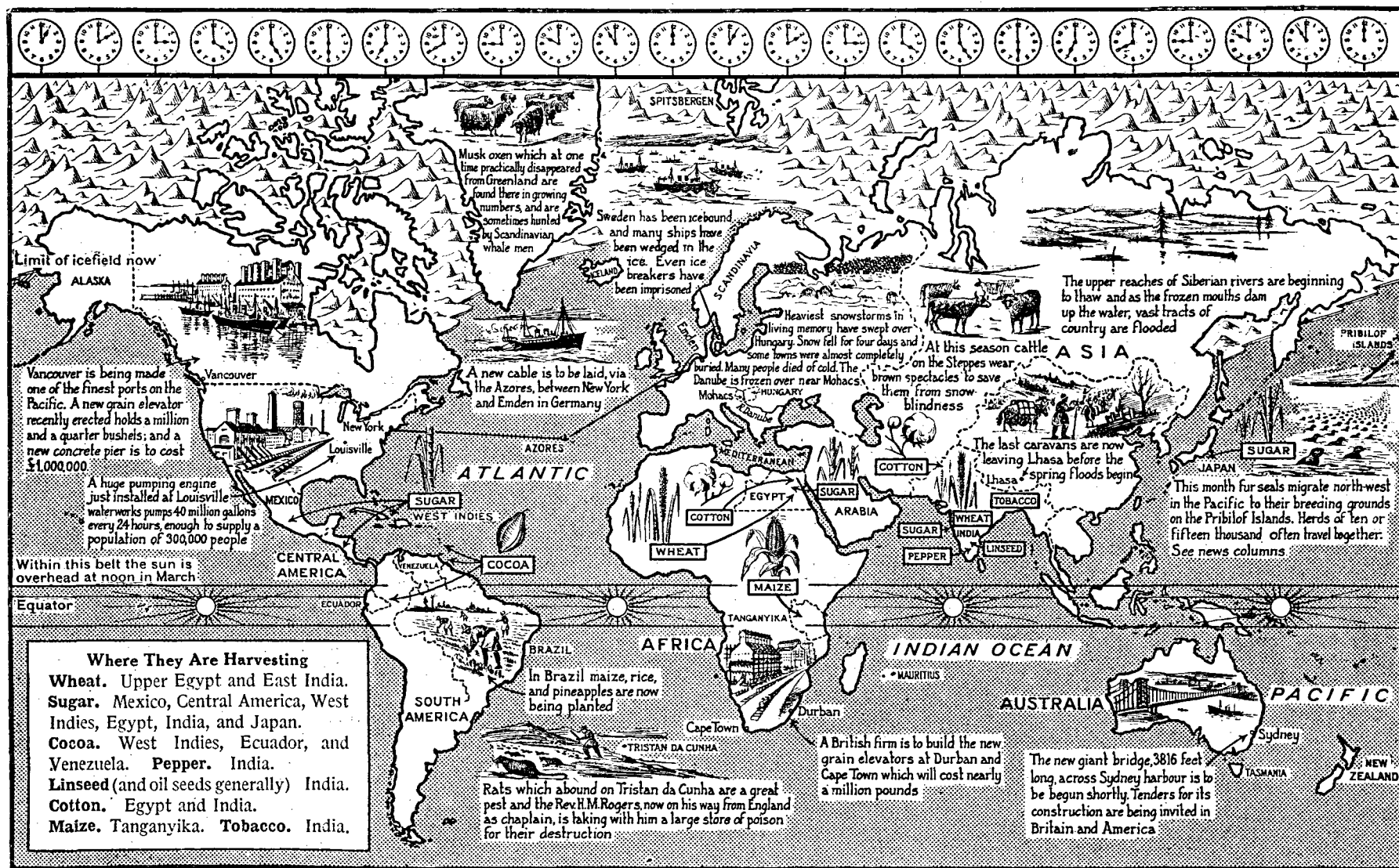
The wolf cub of the jungle is like many other animals—he has four legs, a head, and a tail. So has a goat or a pig, or a giraffe, but these animals are not all clothed in the same kind of fur, nor are they of the same shape and colour. But you can tell a wolf from these by his shape and the colour of his fur, and all wolves are like one another.

So with the boy Wolf Cubs. They are like any other boys in having each a head, two arms, and two legs, but you can tell a Wolf Cub by his dress. He wears a uniform of jersey, shorts, and stockings, a green cap with yellow piping, and neckerchief of the colour of his pack.

When in his ordinary clothes he wears the badge of the wolf's head in his coat, and, like the cubs of the jungle, a boy Wolf Cub will keep his clothes smart.

In the Wolf Cubs' Handbook I have told all about the Law of the Wolf Cub Pack, the games and work and camps, and jolly times they have together while preparing themselves to be Scouts.

PICTURE-NEWS AND TIME MAP SHOWING HARVESTS ALL OVER THE WORLD



SHACKLETON'S FINAL VOYAGE

Impressive Farewell at the Last Port of Call

When we read this Shackleton will have been buried in South Georgia. On the peak of a hill in this lonely island in the South Atlantic the explorer's body will rest, on the route to the South Pole.

When the funeral ship left Montevideo in Uruguay there was a very striking display of sympathy and respect.

After a church service the coffin was taken on a gun-carriage to the harbour. The streets were lined with troops, military bands played funeral marches, a very long procession followed, and people in balconies threw flowers on to the coffin.

The President of the Republic of Uruguay paid a tribute of admiration to the explorer, and the Government sent a bronze wreath which was laid on his grave and will remain there.

Lady Shackleton's wreath was inscribed: To My Beloved Husband, and one from the crew of the Quest: To the Boss from the Boys. He was always known affectionately as The Boss among his friends and fellow-workers.

Among all people, in every land, courage and enterprise and the spirit that makes men toil and suffer not for personal gain are respected and admired. Wherever Shackleton's funeral service had been held there would have been the same tributes, the same throng of spectators, the same sorrowful regret.

He was a man whom all delighted to honour, because he had high ideals of duty and service, and because he followed those ideals, wherever they led him, to the end of his days.

CONGREGATION OF LIFE SAVERS

During a church service at Inverloch, Aberdeenshire, the minister announced that a trawler was wrecked on the rocks, and the whole congregation ran down to the beach and helped in the work of rescuing the crew with the rocket apparatus.

DASH OVER THE ICE

Sad Tragedy of a Frozen River

C.N. readers will remember that when the river below the Falls at Niagara was frozen over recently people were forbidden to go on the ice lest there should be a sudden rush of water and a great loss of life.

That showed wisdom. If equal good sense had been shown in Hungary a terrible accident might have been prevented.

By the River Theiss, a tributary of the Danube, lies a town called Szegedin. The river was frozen, and a wedding-party taking a drive after the ceremony thought it would be fun to make a dash across the river.

The drivers whipped up their horses, and away went the five carriages, filled with merry people, across the ice.

It looked safe enough. No one stopped to consider whether such a race would not be liable to break up even thick ice. All were shouting and laughing and urging on the horses, which galloped forward, keeping their footing on the ice because it was covered by a thick carpet of hard snow.

But when they were half-way across their laughter changed to cries of dismay and terror. The ice could be heard cracking. It broke under their weight and the beat of the horses' hoofs. All were thrown into the water, and almost all were drowned.

In the Auction Rooms

The following prices have lately been paid in the auction rooms for objects of interest.

15th-century Miracle Play . . .	£3400
A sketch by Watteau . . .	£3200
Picture by Dürer of a dead duck . . .	£2100
1st edition Hero and Leander . . .	£1810
Greene's Vision, 1592 . . .	£620
1st edition of the York Missal, 1509 . . .	£450
Silver porringer and cover of 1658 . . .	£403
Black marbled white butterfly . . .	£32
Variety of the comma butterfly . . .	£21
Aeroplane with 80 h.p. engine . . .	£12 10s.

A copy of the 1617 edition of Pyramus and Thisbe, that was purchased for two-pence, was sold for £165.

FILMS IN THE HOME

American History for School Kinemas

When some of us read history our imagination helps us almost to see the people and scenes described.

But not all of us have this help to understanding what we read, though all could have it if they chose to cultivate their imaginative vision.

For the benefit of those who find it difficult to visualise what they are taught films are being prepared in America to illustrate every age of American history.

Thus boys and girls will not merely have the life of President Lincoln, or the events of the Revolution which separated the United States from Britain, or the development of cotton-growing, described for them in their school books; they will see such things on the screen and so retain a more vivid impression.

No doubt we shall have such films here in time, and it may very likely be possible to show them in our own homes.

A machine has been made to use with paper films instead of the celluloid ones, which are so dangerous because they catch fire easily. They can be reflected on to a sheet with no more light than is obtainable from the electric current supplied to houses.

A great advance is this, and one that promises much pleasure to all of us, as well as a vast development of the film industry. *Picture on page 12*

BINDING THE C.N.

Readers' copies of the C.N. from March 1921 to March 1922 can now be bound at a charge of 7s. 6d. per volume. Copies should be sent, flat and carriage paid, to the C.N. Binding Department, 7, Pilgrim Street, Ludgate Hill, London, E.C., with postal order for 7s. 6d. made payable to the Amalgamated Press, Ltd., and crossed Bank of England, Law Courts Branch.

Any back numbers can be supplied by the Binding Department at a charge of 2d. each. If these are to be sent add an extra penny per copy for postage.

A GREAT HEADMASTER

Teacher Who Found Boys Always Reasonable

MILL HILL SCHOOL LOSES SIR JOHN MCCLURE

A famous headmaster, a doctor of music, a professor of astronomy, a barrister, a prominent Free Church minister, a preacher of rare ability, who could equally charm an intellectual congregation in a university town and a handful of little children—all these distinctions were united in Sir John McClure, whose death at 62 is a real loss.

He had been headmaster of Mill Hill School for thirty years. When he took it over it was in low water; there were only 61 boys on the books. He raised that number to 300, and made this Free Church school a competitor with the greatest public schools in scholarship and in games. Best of all, he made it known as a fine centre of character training.

Boys found in him rather a big brother than a stern disciplinarian. He was very fond of them and always maintained that the boy of today is a better fellow all-round than the boy of twenty or thirty years ago.

"Boys," he once declared, "are always reasonable if they are approached in the right way."

He held many positions of honour, and was very often asked to speak in public because he always made interesting speeches. He mixed with his earnestness and idealism a little humour, and the combination was delightful.

Naturally a man so many-sided believed in education being made as varied and attractive as possible. It was his wide and generous humanity that made him a really great schoolmaster and a friend of all good and noble causes.

CHILDREN'S NEWSPAPER

MARCH 4 1922

Unsuccessful Success

WE hear of a traveller, who has been passing through England, who declares that in all the places he has visited, fashionable or unfashionable, he has encountered prosperous people who seem dreadfully unhappy.

What is it that is wrong with them? What is the explanation of so much unsuccessful success? Why are so many people who are rich in money poor in happiness?

They must have exceptional virtues, these people, for it is not easy to get on in this overcrowded world. They probably have the power of concentration, the virtue of perseverance, and the good quality of courage.

How is it, then, that these people are not half as pleasant to talk to as many shepherds and road-menders, and nothing like as happy as many fishermen and farmers whom we know? How can we set out to win success in the world without the risk of losing both humanity and happiness?

It seems pretty certain that all success is dangerous to character, more or less, but that success which is purely selfish, success gained at the expense of other people, is destructive of everything which makes life beautiful and enjoyable.

Is not the wise thing to do, then, to *consecrate our ambitions*?

If we feel impatient with things as they are, if we are conscious within ourselves of powers striving for play, let us direct those powers into a channel which will make our lives useful to other people. What should we think of a doctor whose one passion was to make money out of sick people? We should think ill of him. Why should we think well of a merchant whose only desire is selfish?

We are so fashioned that we cannot be happy, whatever our circumstances, unless there is growth in the mind and peace in the heart. We must be always learning, always wanting to know more, always seeking to develop our intellectual qualities; and at the same time there must be an unbroken peace in our hearts—the peace which is possible only to those who love God and serve their fellow-men.

One of the clearest-headed men of our day declares that the secret of Christianity is growth. It is a religion which teaches men how to grow. It is not our fortunes which must grow, but ourselves. It is our lives that count; not our money.

There are few things in the world more tragic than the life of the selfish man who has succeeded in all his ambitions. And yet success should be a glorious and happy thing. Let us avoid selfishness in all things, great and small, if we would find that every day we live is happier than the last. It is the only life that is worth while.



THE EDITOR'S TABLE

Fleetway House, Farringdon Street, London
above the hidden waters of the ancient River Fleet, the
cradle of the Journalism of the world



The Gardener

A GOOD point has been made by a bishop against a most endearing writer on Nature.

This writer, says the bishop, takes us into the garden of our wonderful Earth, makes us love the flowers, makes us feel the glory of the life of the garden, and all the mystery of the rhythmic seasons, but never once brings us face to face with the Gardener.

Is not that a thing to remember in all our Nature writing and reading? Man plants and waters, but God giveth growth and increase.

Proverb of the Day



To a Hypocrite
Borrowed Garments Never Sit Well

A Little Gentleman

OUR greeting to a little man somewhere in Lancashire who was seen at a station by a reader carrying heavy parcels for an old lady.

He was a thinly-clad boy, but he toddled cheerfully with his parcels and put them in the train. Then the lady offered him some coppers, but our little man was heard to say: "No, thank you, mum; I didn't carry them for money," and, touching his cap, he ran away.

"He was a perfect little gentleman," says the reader who saw him—"one to whom I felt I should like to raise my hat—and I did."

And so do we.

Our Heritage

By Harold Begbie

WHEN I stand up for England
A thousand years are mine,
I'm one with all the heroes

Of her unbroken line;
I'm Freedom breaking tyrants,
I'm Justice binding wrong,

I'm Raleigh's sail borne westward,
I'm Shakespeare's golden song.
When I stand up for England,
O privilege divine!

I'm one with all her triumphs,
• Her thousand years are mine.

WHEN I stand up for Goodness
All time is in my soul,

I'm God's great Purpose starting
From chaos to its goal;
I'm Light that moves from darkness,

I'm Love that turns from strife,
I'm Galilee, I'm Athens,
I'm everlasting Life.

When I stand up for goodness,
O privilege divine!
I'm all that man has conquered,
His million years are mine.

Australia's Ambassador

AN Australian correspondent who knows well Sir Joseph Cook, the new High Commissioner in London, writes to us of Sir Joseph's happy country home in the hills near Sydney, where "the present High Commissioner would spend hours with his children, reading to them the Children's Encyclopedia."

We are glad to feel that the spirit that runs through the C.E. and the C.N. has found its way to the highest place in Australia House.

Tip-Cat

A NEW book of etiquette insists that a gentleman must always follow a lady up and down stairs. But suppose they live in a bungalow?

WHAT Germany wants to avoid: The beaten track.

THE way to get more business, we are told, is to go after it. A better way is to bring it back.

IT is said that enthusiasm is not characteristic of the people of Iceland. They naturally take things coolly.

YOUNG Miss Powder-Nose, we read, "spends a small fortune on her face." So she gets her rich complexion.

THERE is so much talk in these days that we often cannot tell whether a nation is tottering or tittering.

THE plaid is losing popularity in Scotland. The Scot is tired of being kept in check.

THE Premier says Britain is a stable country. Much speaking seems to have made most of our public men a little hoarse.

IDEALS kill men in politics, a critic says. But politics kill more ideals in men.

Enough to Make an Optimist

EVEN the Post Office moves. Every boy who has a wireless instrument will be delighted to know that the Marconi Company is going to send out speeches and music for half an hour on one day every week for amateurs. For a long time it has been done from the Eiffel Tower in Paris and from the Hague; we love to listen to the music and voices that come through space into our room on a Kent hill-top.

But what appeals to us not as wireless enthusiasts, but as simple citizens, is this—that it has taken the Wireless Society of London a year to secure permission for this from the Post Office.

It is enough to make a pessimist an optimist.

A Boy's Memory of an Old Man

By a Correspondent

A C.N. reader abroad sends us this story, reminding us of the saying "We judge the world wrongly and say that it deceives us."

A long time ago, when we were schoolboys of 15 and 16, my friend Maurice asked me to accompany him to his uncle's, of whom I was very fond. The uncle was one of those old bachelors who love youth, and have the charming gift of being to young people the great friend who understands and is listened to.

I remember that the uncle was sitting near an opened window, smoking his pipe and reading a book. We began talking; and the uncle, addressing himself to Maurice, inquired:

"What about you, my boy?"

"Nothing bad," said Maurice, "but I am cross just now."

"And why are you cross?"

"Because I wrote a very good letter to my mathematical teacher for his birthday a fortnight ago, and I have had no answer."

"So you are hurt by his silence?"

"Yes; and, although I am but a schoolboy, I dare say he is a beast!"

"Perhaps he is," said the uncle; "many men may be called beasts. But first of all are you quite sure this silence is meant, and that it proves his indifference and bad manners?"

Maurice laughed, and the matter ended. Two days after we returned to the uncle for dinner. Maurice went in very brightly. "Anything new?" asked the uncle.

"Yes; I have had an answer from my teacher—a charming one. There had been a mistake with the letter-box at college; the letter only reached him the day before yesterday."

"Come here, my boy," said the old gentleman; "let us talk a little. My idea is that we must not be too sensitive, that instead of calling a man a beast, instead of hastily accusing people, we must look for a reason for excusing them. There is always one to be found. There are bad manners, it is true, but bad manners, petty malice, and rudeness are much rarer than we think. We look at things in the wrong way and jump to conclusions. Believe me, if we are wrong sometimes we are not beasts."

Maurice's uncle is dead now, but I have not forgotten this little lesson, and whenever I am going to be cross, or rude, or angry, or over-sensitive, or willing to believe the worst of somebody, my thought goes back to that armchair near the window and the old man with his pipe and book. Not many memories have been so useful to me as this.

Robert Herrick's Prayer

For those my unbaptised rhymes,
Writ in my wild, unhallowed times;
For every sentence, clause, and word
That's not inlaid with Thee, my Lord,
Forgive me, God, and blot each line
Out of my book that is not Thine.
But if, 'mongst all, Thou find'st here one
Worthy Thy benediction,
That one of all the rest shall be
The glory of my work and me.



PETER PUCK
WANTS TO
KNOW
How tall Long-
fellow was

MYSTERY OF THE SKY

WHAT IS THE GREAT RED SPOT?

Is a New Moon Being Formed Before Our Eyes?

JUPITER'S PROBLEM FOR THE ASTRONOMERS

By an Astronomical Correspondent

Is the great planet Jupiter, which is now approaching the earth and will next month be at his brightest, now engaged in throwing off a new satellite in the same way as our earth is supposed to have thrown off its moon from the place that has since become the Pacific Ocean?

This is the thrilling question that is being discussed by astronomers, and if the theory is correct it means that we can look through a telescope and actually see a moon larger than our earth in the course of formation 500 million miles away.

Planet Hidden by Clouds

Jupiter, the largest of the sun's family of worlds, is a giant planet with a diameter of about 90,000 miles, and his size is equal to 1,300 of our earths, although in weight 316 earths would balance him. He has nine known satellites, the nearest circling 112,500 miles from his centre and the farthest 15 million miles from him. If a new moon is really being formed it will be the tenth possessed by this great planet.

Jupiter is much more flattened at the poles than our earth, and he is believed to be still in a plastic condition, while his surface is completely hidden from us by great cloud-belts.

Now, about half a century ago, if not more, men began to notice a curious spot on Jupiter's face, and in 1878 they started to study this carefully. It proved to be about 30,000 miles long and 7,000 wide, and was oval in shape. Owing to its colour, it came to be known to astronomers as the Great Red Spot.

Spot that Changed Colour

Aerial disturbances were noticed round it, and these, together with the colour, suggested that it was something in the nature of a sunspot—possibly an area flooded with a fiery mass of great heat, the result of a vast volcanic eruption on the planet.

But as time went on the mystery deepened. The spot changed colour, being sometimes darker, sometimes as light as pink, and at times fading almost away. Then, while, as one astronomer put it, it was "jammed down" on the planet's southern equatorial belt, it was evidently not joined to it, for it was not always in exactly the same position on the planet, and its period of rotation varied by a few seconds from time to time. As a matter of fact, it appeared to be floating in a kind of bay, or basin.

A Startling Theory

The spot has always remained an enigma to astronomers, though various theories have been advanced to account for it. The volcanic theory has already been mentioned. Another theory is that it may be a rent in the dense cloudy envelope, giving a glimpse of the planet's surface.

But the latest and most startling theory is that the Red Spot is a moon in the course of formation—that a great mass of the planet, larger than our earth, is gradually being thrown off from its surface to form a tenth satellite, that will travel round one day in an independent orbit, and will seriously affect the movements of the other nine moons.

The matter is now being discussed by astronomers, and, while the moon theory is regarded as interesting, it is pointed

NEWS FROM EVERYWHERE

A Cornish carrier has lost £50 worth of Treasury notes, eaten from a cardboard box by mice.

One fourth of Scotland has changed hands since the Armistice, and the money paid has been over fifty million pounds.

A Powerful New British Engine

A new thousand horse-power aeroplane engine which, it is claimed, will lift 30 men has just been made by a British firm.

A Record Voyage

Lord Northcliffe, who has returned to Europe after an eventful voyage round the world, says he did not experience a single day of rough weather at sea.

Millions of Grasshoppers

A flying man in flying from Sydney to Charleville, New South Wales, encountered millions of grasshoppers at Singleton. The blades of the propeller were half an inch thick with them.

The Ontario School for the Deaf, at Belleville, Ontario, would be grateful for back numbers of the C.N.

Last year the Aquitania carried 60,000 passengers to and from America, steaming a distance of 100,000 miles.

An Acre of Potatoes

Mr. Henry Ford declares that an acre of potatoes will provide alcohol enough to plough the acre with tractors for a hundred years.

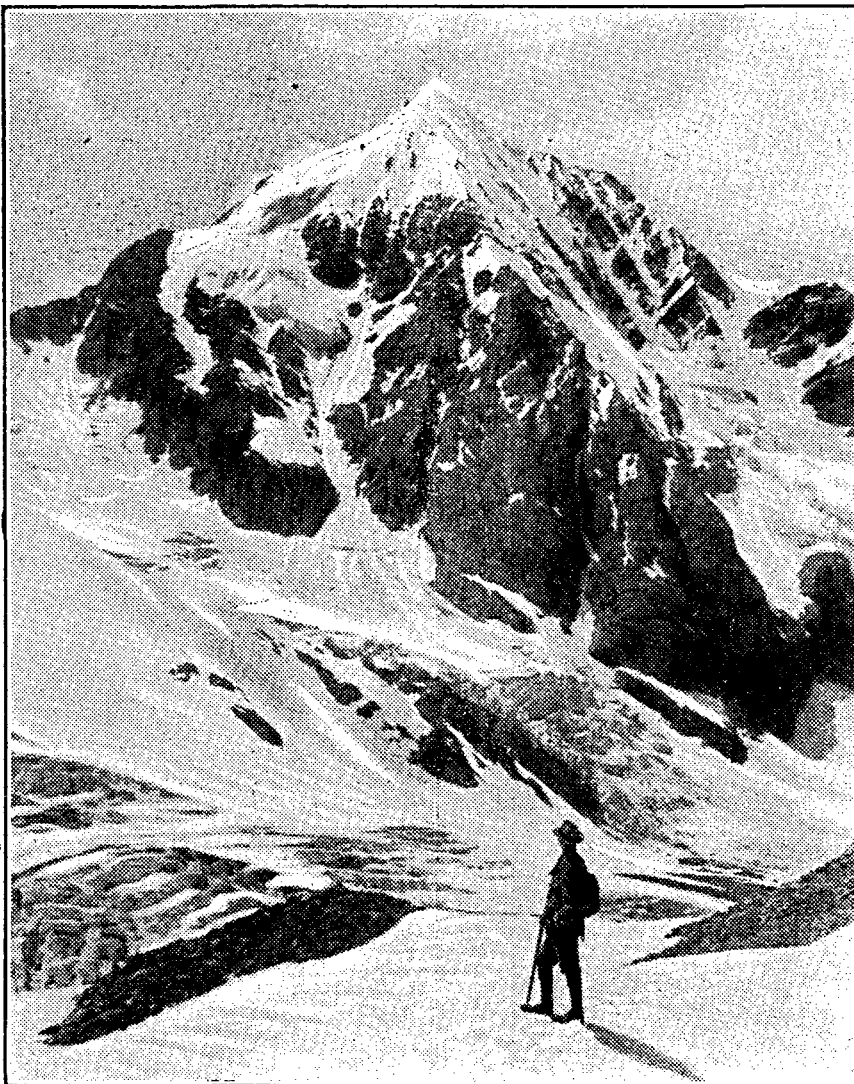
Queer Nests

A Sheffield reader writes of tits who have nested for four years in a drainpipe adjoining a house, and of robins making their nest in a bucket in a hedge.

Money Well Used

Eleven and a quarter million pounds is the latest millionaire gift in America. It is for the advancement of medical education, and John D. Rockefeller junior is the giver.

THE GLORY OF THE EVERLASTING HILLS



A lamentable proposal has been made in Italy for re-naming famous mountain peaks after famous soldiers and politicians of the war. All who love the glory of a mountain will hope that no attempt will be made to associate names that must perish in a few short years with the imperishable grandeur of the Alps. Why should men fix the labels of their little day, the reputations of an hour, on the eternal Alps?

Continued from the previous column

out by some scientists that there are difficulties in the way of its acceptance.

For one thing, if this were an embryo moon about to leave the planet, its longer axis would not, as now, be parallel with the planet's equator, but would point toward the centre of the planet.

Then it is pointed out that a satellite could not thus be thrown off gradually, because, according to a scientific law known as Roche's Law, the least distance at which a moon can resist the tremendous tidal force produced by the attraction of its planet is 2.44 times the planet's radius, or about one and two-fifths times its diameter. Were the moon nearer than this only for a short time it would be broken into pieces by the tidal force, and these would circle in a ring round the planet, in the same way as Saturn's rings now do.

A new moon for Jupiter could not be formed gradually, it is declared, but would have to be shot out to a distance of at least 112,500 miles from the planet's centre by some tremendous explosion inside the planet, or drawn away instantly by some enormous attraction from outside.

The moon theory is, however, very ingenious, and its advocates may have arguments to meet the difficulties.

While some astronomers believe that the earth's moon was formed in this way, and that for a long time it went round the earth at what has been described as "grazing distance," it is pointed out that the satellites of the other planets have no such origin.

Their orbits were never smaller than they are now, and if Jupiter throws off a moon from its surface it will probably be the first one so formed since our own moon came into existence.

TONGA

MOST PROSPEROUS ISLANDS IN THE PACIFIC

Bold Sailors, Fine Workmen, and Good Government

LIFE AMONG THE COCONUTS

The native Prime Minister of Tonga, or the Friendly Islands, has lately visited Australia and aroused interest in his happy and prosperous little State.

Tonga is now a British Protectorate, but is still under its own ruler, Queen Salote, with its own parliament and native system of government.

Until, by its wish, it became a Protectorate under the British Empire, to prevent any other nation extending claims to include it, this island group was the last entirely independent State in the Pacific Ocean.

There are several strong reasons why we should feel a warm interest in its welfare. The Tongans are the most interesting navigators in the whole Pacific Ocean. That, perhaps, was why they gave such a pleasant welcome to Captain Cook when he arrived in their midst, and made him feel that the Friendly Islands was a good name for their land.

Sailing the Southern Seas

They knew what it was to sail far across the Southern Seas and land on alien shores, as he was doing. Among the other islanders they were what the Phoenicians were in ancient days, when the Mediterranean Sea was the centre of civilisation: that is, by their curiosity, initiative, daring, and energy, they acted as the go-betweens who trafficked with other races far apart.

They were, too, not only the boldest sailors in frail craft about the wide Pacific, but also the best workmen in the simple industries and arts that were known before white people came among them, such as the making of bark-cloth and the ornamental carving of wood. They were also expert in building superior houses and in making seaworthy boats.

First discovered in 1616, the islands were visited by the Dutch seaman Tasman in 1643; but it was Captain Cook who introduced them to the notice of the world by his visits in 1773 and 1777.

Choosing the Best

As might be expected of such a vigorous race, the Tongans have learned much from the white people, choosing what is best and preserving much of their independent natural life.

Thus, they have now all adopted Christianity. This is largely due to the labours of Wesleyan Methodist missionaries, who reached the islands in 1822. An educational system has been established, with 57 schools and a college as its completion.

The State has managed to escape many of the burdens that accompany European civilisation. It does not spend anything on preparations for war; has no debt for any public services; and has no land question, as no one owns land.

Coconuts and Earthquakes

No one is allowed to own land. Every native on reaching the age of 16 is allotted the use of enough land to grow food for himself and a family, and is expected to cultivate it properly, so as to be independent.

The coconut is the mainstay of the island. Sold under the name of copra, the produce of the tree buys all the islanders need from over the sea.

These fertile islands lie 250 miles from Fiji, and have constant intercourse with the Fijian and Samoan groups. The population on 32 islands was once more numerous, but is again increasing, and now numbers about 24,000.

The largest island, Tongatabu, about 25 miles by 10 miles in size, is the seat of the government, the capital being the settlement of Nukualofa.

The drawback of the islands, which are partly of coral and partly volcanic formation, is frequent earthquakes.

THE VANISHED ABBEY

A BUILDING THAT NO LONGER EXISTS

Unfamiliar Church on the Princess's Marriage Certificate

SIR CHRISTOPHER WREN'S TOWERS

For convenience everybody speaks of Princess Mary's wedding as taking place in Westminster Abbey, but really there is no such place, and the marriage documents bear the description "the Collegiate Church of St. Peter, Westminster," the title by which this historic sanctuary has been legally known since the year 1560.

Strictly speaking, the once famous Westminster Abbey no longer exists. It was abolished when Henry VIII dissolved the monasteries, and the so-called Abbey of today is only the chapel attached to the Abbey buildings in which the monks once performed their religious devotions.

In Queen Elizabeth's reign this was given the title of the Collegiate Church of St. Peter, Westminster, by which name it has ever since been described in official documents.

Many people think the whole building is ancient, but, as a matter of fact, it was not completed till 1735, and the two towers at the West end of the church, the most familiar features of the building, are comparatively modern, for they were designed by Sir Christopher Wren.

Curious Scene in Church

Another curious thing about the so-called Westminster Abbey is that whenever the Archbishop of Canterbury goes there, as for the wedding of Princess Mary, a formal protest against his presence is made by the Abbey clergy. This is a relic of the ancient days when the monks claimed to be free of control by all prelates and outside authorities except the Pope.

But the famous sanctuary has been the scene of an even stranger contest. At one time the Archbishops of York contested the primacy of England with the Archbishops of Canterbury, and in 1676, at a Council in the Abbey Church, His Grace of York, finding on his arrival that the Archbishop of Canterbury was already seated in the place of honour on the right of the Papal Legate, refused to take the left-hand chair, but seated himself in the lap of the Primate of All England, "a baby too big to be danced thereon," as the old chronicle quaintly puts it. An official, we are told, soon plucked him from thence and buffeted him to purpose."

Fortunately, such scenes are a thing of the long distant past.

BEES IN THE BONNET

Queer Adventure of an African Traveller

Everyone knows the phrase "So-and-so has a bee in his bonnet," meaning that on some subject or other his mind is full of buzzings.

In Kenya Colony, East Africa, a man recently had a whole swarm of bees in his bonnet—the bonnet of his motor-car.

He left the car outside the post office in the town of Nairobi; when he came out, after some little time, he was dismayed to find that a swarm on the look-out for some resting-place had chosen the front of it, where the engine is, to settle down in. They had got in through the slits of the cover, and it was impossible to get them out.

He could not drive the car; it had to be pushed home. Whether he took the swarm and put it into a hive is not known; he may at least have had some honey to make up for the trouble.

Why the Nations Will Go To Genoa

SEARCH FOR PEACE AND PROSPERITY

Greatest Gathering Since the War to take Place in the City of Columbus

A LOOK ROUND AT EUROPE RECOVERING FROM THE WAR

It is expected that about a thousand men in all will attend the great conference at Genoa in April, when all the nations of Europe except Turkey will meet, with America also at the table, to consider the best ways of restoring real peace and prosperous trade.

Even Lenin will be there, it is supposed; France and Germany will be face to face; for the first time since the war all nations will come together, the conquerors and the conquered, in the hope of settling down to civilised conditions once again.

The war taught everybody the meaning of shock. We all learned that the after-effects of a blow or a wound were almost as important as the instant effect.

To all the nations sternly engaged the war came as a heavy blow. Some staggered under it quickly. Others held out longer, and then suddenly collapsed. Others plodded on sturdily to the end, shaken but enduring. The final effects, however, can only be judged as time tells how far the shock affected each nation's nerves and strength.

Empires Fall to Pieces

The first country to collapse was Russia, as was natural, for she had neither the unity of race nor the common mind and purpose of a stable people, free and mutually trustful; and her disunity has led to increasing disasters.

The next empire to fall to pieces was Austria, and she was shattered so completely that she can now only be judged in fragments. Austria herself, the smallest of the fragments into which she has split, is paralysed.

The part of her empire most earnest in the war, Hungary, has suffered almost as much as Austria proper in loss of territory and in the demoralisation that has followed defeat, and Hungary shows scarcely any plainer sign than Austria of recovery from the shocks.

But those parts of Austria that were not in sympathy with the war, which have formed new countries, have shown a remarkable power of recovery. Thus the people of Czecho-Slovakia, the Northern Slavs of the Austrian Empire, have won admiration by the way they have organised their new State.

Repairing the Ravages of War

The two southern nations in the basin of the Danube that suffered more terribly than any others, because they were completely overrun by the enemy, but who yet emerged victorious from the war, Serbia and Rumania, have settled steadily down, as Powers of greatly increased importance, to repair patiently the ravages of war. The faithful rally of the Southern Slavs round the remnant of suffering Serbia has been one of the most impressive features of the Peace; and expanded Rumania is swiftly returning to commercial prosperity.

Italy always had the disadvantage of being less wealthy than her population and the importance of her position required, and she has felt severely her want of some of the greatest necessities of industry, particularly coal, since the close of the war made a return to productive work essential to her welfare; but she has steered her course with fair success through a sea of after-war business troubles. Though shaken, she has not been discomfited.

Repentant Bulgaria, misled by her ambitious ruler, has gone back to patient industry, and will quickly recuperate.

In Western Europe the first place in rallying from the effects of the war must be given to Belgium. Nowhere else has the resolution of the people to let nothing stand in the way of a return to normal prosperous life been so universal.

It is true that Belgium, gallantly as she behaved and much as she suffered, did not undergo the strain of war so completely as France, or Germany, or Great Britain. She did not suffer, proportionately, the same loss of life. The land was swiftly overrun by the enemy, except a narrow strip, and it served the German purpose that much of its industry should go on, under supervision.

Therefore, though Belgium was in sore straits at the end of the war, the recovery of her trade was not hopeless; and her practical people, thrifty, industrious, and sensible, at once set to work, in a spirit of splendid unity, to repair the ravages of war, and they have been successful in a very high degree.

France, too, has shown that her terrible loss in manhood has not lessened her resolution or power of recovery, and she has done wonders in repairing the damages wantonly inflicted on her in the hope of permanently sapping her strength; but many of her best friends are wondering whether she has regained the steadiness of nerve needed to read aright the greatest lessons of the war, especially the truth that only the cultivation of friendliness between great nations can leave any one of them permanently secure.

Britain's Magnificent Strength

And now we come to Germany, the great aggressor. She has sustained her solidity as a nation, and is bent on regaining, through patient industry, the place in the world which she lost through her military ambition. She is employing all her energies to redeem herself by work, and her Chancellor, Dr. Wirth, roused great applause in the German Parliament the other day when he declared that they would send to Genoa open and broad-minded men, and would strive for the cooperation of all nations in re-establishing good relations.

And, lastly, Great Britain. The first broad fact that concerns her is that the war, instead of shaking her foundations, strengthened her great free Commonwealth. She stands a Commonwealth of free nations bound together by mutual trust. The war, instead of acting as a weakening shock, brought out the magnificent reserves of British strength.

Who would have dreamed before the war that, when between half and two-thirds of her workers turned soldiers or the providers of things needed by her soldiers, the rest of the people would have provided all things needful for themselves and her soldiers without borrowing abroad more than she lent abroad? It was a miracle of energy and sacrifice.

Need for Mutual Helpfulness

But that noble record has not been fully sustained since the Armistice came. There has been industrial dissension, great dislocation of trade, and, though want has been kept at bay by special arrangements, the nation has not been paying its way by the production of wealth, partly because other nations have not been able to buy from her, and uncertainty has sapped enterprise.

It is clear that a time has come when all the nations suffering from the industrial slackness that has followed on the waste of war should meet together, and, if possible, agree to such mutual helpfulness as will bring back prosperity.

That is what the conference of the nations at Genoa is designed to do. Better feeling between nation and nation must be cultivated and put into action. Europe, and indeed the world, must be looked at as one community, part depending on part, and all working together in peace with steadfast goodwill. To secure that is the task of this great coming conference in Italy.

THE WEEK IN HISTORY

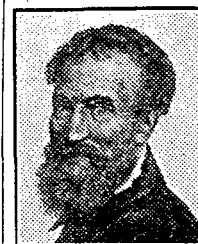
MAN OF MANY PARTS

Marvellous Genius of Michael Angelo

PAINTER, POET, SCULPTOR, ARCHITECT, ENGINEER

- March 5. Correggio, artist, died at Modena 1534
- 6. Michael Angelo born at Florence 1475
- 7. John Richard Green died at Mentone . . . 1833
- 8. William III died at Kensington 1702
- 9. Cardinal Mazarin died at Vincennes . . . 1661
- 10. William Etty, artist, born at York . . . 1787
- 11. Sir James Outram died in Paris 1863

Michael Angelo, whose family surname was Buonarroti, the grandest sculptor since the days of ancient Greece, painter, architect, poet, and engineer, and



Michael Angelo

one of the greatest of mankind, was born at Florence on March 6, 1475, and died at Rome on February 18, 1564, as he was approaching the age of ninety.

His father, a Florentine gentleman, poor and proud, was ashamed that his son should be a sculptor, but the boy's devotion to art could not be suppressed, so he studied sculpture and painting in Florence in the days of Lorenzo the Magnificent, who at once recognised his genius.

At the age of 21 he went to Rome, where one of his works, a marble Cupid, had been bought under the belief that it was a piece of ancient Grecian art. Here he produced, at the age of 22, the sculpture of Mary mourning over the dead body of Christ, which is now one of the treasures of St. Peter's Cathedral in Rome.

Returning to Florence, he modelled, from a huge block of marble that had defied an earlier sculptor, a David that has remained one of the world's most famous sculptures. His skill was now eagerly invited, and when he was 28 he returned to Rome.

A Wonderful Ceiling

It was an unfortunate change, for a new Pope, Julius II, an ambitious and masterful man, at once commissioned him to prepare an elaborate monument as a tomb. That monument was never completed, but it harassed Michael Angelo's life for 40 years. The Pope and the sculptor were both hot-tempered and masterful men, alienated from each other by stormy passions.

Before the tomb was well advanced Julius insisted that Michael Angelo should decorate the ceiling of the Sistine Chapel with paintings of sacred subjects, though sculpture was his favourite form of art. For four years the artist lay on his back on a lofty scaffold, and painted decorative pictures that have remained one of the wonders of art.

Then the Pope died, and his successors objected to the expense of the tomb, and now the only sign of its contemplated grandeur is a fragment of it, a sublime statue of Moses coming down from the Mount with the tables of the Law in his hand and indignation against the rebellious Israelites shown in his attitude and face.

Fame that Has Grown with Time

Afterwards the artist further enriched the Sistine Chapel with a great picture of The Last Judgment.

Michael Angelo's middle life was passed between Rome and Florence, and during one of his stays in Florence he showed his skill as an engineer by fortifying the city and conducting its defence against the enemy.

In his later life he was appointed architect of the great cathedral of St. Peter's, which had already been begun, and in his old age he distinguished himself as a poet in only a less degree than he was distinguished as an artist.

At the end his renown was universal, and his fame as one of the world's great men, with marvellously diversified genius, has grown as time has lengthened.

BITTERN NESTING IN ENGLAND

Good News for Nature Lovers

HUNGRY BIRD THAT HUNTS BY NIGHT

By Our Country Correspondent

From East Anglia comes news that the bittern is once again nesting in England.

Several readers have written to say that the bittern has, during the last year or two, been getting more common in the Norfolk Broads, and that it is once again nesting in England.

A famous naturalist wrote some time ago in his book on British birds that the bittern, formerly a common bird, was hardly entitled to a place in the book, as it had long been extirpated as a breeding species. This statement, expressed in different words, is found in practically every modern book on British birds.

The news, therefore, that the bittern is again nesting in England is both surprising and interesting, and will be received with the greatest pleasure by every nature lover. The bird, though it had ceased to breed here, had continued to pay us annual visits, and it was generally recognised that if only the human inhabitants would allow it to do so it would again nest in suitable places.

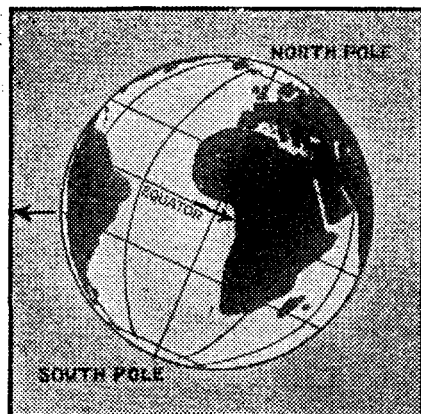
The bittern is a strange-looking bird, somewhat resembling the heron, to which it is related. Its scientific name is *botaurus*, which is Latin for the bellowing of a bull, and the curious booming sound which it utters at the present season is certainly something like the voice of the bull. In addition, the bittern makes a loud, screaming sound.

During the day the bird spends its time hidden in dense reed beds, where it builds its nest on the ground. Its colouring renders it difficult to distinguish amid these surroundings, hence few people have seen the bittern.

It is distinctly a night bird, and as soon as darkness falls comes from its hiding-place in the marsh to search for food. Few living creatures come amiss to it; fishes, eels, voles, small birds, frogs, and insects of all kinds are snapped up, and the larger creatures are all killed in the same way, by a blow of the powerful beak.

If the bird has begun to nest again in East Anglia the greatest care must be taken to see that it is not driven away. There are far more nature-lovers in the country today than ever there were before, and these must keep a watch to stop persecution of this creature.

THE EARTH SEEN FROM THE SUN



The earth at noon on any day in March as it would be seen through a telescope from the sun. The lines of latitude and longitude are put in to show the tilt. The arrows show the way the earth is travelling and rotating.

Newspaper Notes and Queries

What does Vert mean? It is the heraldic name for green, and is French.

What is a Sigillaria? One of an extinct family of trees, the remains of which are found in the coal measures.

What is Sabotage? Damage done to machinery or factories by dissatisfied workmen. It is derived from the French word *sabot*—a wooden shoe, worn generally by workmen on the Continent.

ARCHERS RETURN TO THE CITY

Bowmen Within Sight of St. Paul's

CURIOUS REVIVAL OF AN OLD PRACTICE

In the days of bows and arrows every city had on its outskirts a practice ground for archers. These open spaces were kept free from buildings, and danger signals were hoisted when shooting was going on.

In London there was one of these archery grounds at Finsbury, and in the fifteenth century the men of London were obliged by law to practise shooting there on Sundays and holidays after they had been to church, instead of playing football or watching the cruel "sport" of cock-fighting.

Now it is likely that this piece of ground at Finsbury, which has remained an open space, may be once more the scene of archery practice.

There is a society, mostly composed of women, who use the bow and arrow for exercise and recreation instead of playing golf or lawn-tennis. For a long time they have practised in Regent's Park, but now they have to find a new ground, and the ancient City of London regiment called the Honourable Artillery Company, which owns the Finsbury Fields, may let them use these.

The modern archers shoot at a target with coloured rings on it and a golden "bull's-eye" in the centre. The old archers used to try to hit marks—wooden posts with birds on them, or small pieces of rounded stone.

The Finsbury Fields are the only ones that have not been built over. As London spread the value of the open spaces reserved for common use went up enormously. Millions of pounds were paid for them as building sites. It is interesting that one should remain, and that there should be a chance of its being turned to its old use again.

SEALS MIGRATING NORTH

Ten Thousand Travel in Military Formation

The habits of the Alaskan fur seal that breeds on the Pribilof Islands are not very well known.

It passes the winter far south of these islands, and then in March migrates north-west once more. During the present month herds of as many as ten or fifteen thousand are sometimes seen travelling together in the open sea, and their movements seem to have all the order and discipline of a human army.

A former keeper of the lighthouse on Farallone Island, which lies west of San Francisco, has noticed these huge herds on several occasions. They advance, he says, in a line several miles long from the south, and when they approach the island halt for a moment or two, then swing round in perfect military formation and swim off in a north-westerly direction.

It is only at the present season that these seals are found in herds in the open sea. They usually appear singly.

The Pribilof Islands, where the young seals are born, are north of the Aleutian Islands, in the Bering Sea, and belong to Alaska. See World Map

HELP FOR AUSTRIA

A Noble Revenge

The help which at last is to be given to the unhappy Austrians, in the shape of a two-million-pound loan from Britain, has raised their spirits and made them very grateful.

Italy set a good example long ago by sending wheat to her ancient enemy when the people of Vienna were in danger of starvation.

"This is our revenge," said the mayor of an Italian city, "to wipe away the memories of enmity by sending help to our enemies."

C.N. QUESTION BOX

Little Puzzles in Natural History

Answered by Our Natural Historian

All questions must be asked on postcards, and not more than one question on each card.

Are There Bears in Africa?

It is a curiosity of natural history that Africa has neither bears, tigers, nor wolves.

Do Vultures Carry Off Their Prey?

No; their feet and talons are not strong enough for this, so they feed where they alight, generally on carrion.

Is the Slow-Worm a True Reptile?

It is. It is a lizard, and, though its four legs have vanished from sight and use, they can be traced beneath the skin.

Which is the Most Numerous Type of Animal?

Fishes, if we confine ourselves to those with backbones—both in number of species and number of individuals.

Are All Reptiles Scaly?

Most of them are, but not so the crocodiles and alligators, whose skins are covered, not with scales, but with plates of true bone.

Are All Camels Savage?

They all seem to possess a certain strain of morose ill-humour, but consistent kindness makes them gentle, affectionate, and trustworthy.

Does a Goldfish Lose its Black Spots in Captivity?

In favourable conditions of food and temperature a gold fish, dark in infancy and youth, should gradually assume an entire coat of golden mail.

What is the Highest Price Paid for a Cat?

We have no account of show prices, but it is a fact that the early white settlers in Brazil paid £300 apiece for adult cats, and for kittens their weight in gold dust.

Can a Crested Cardinal and a Budgerigar Live out of Doors in Winter?

Far better than indoors if the aviary be big enough for a good flight and shelter against winds and damp be provided. No artificial heat is necessary.

From What is Cocoa Made?

Cocoa is prepared from the seeds of the cacao tree, that reaches a height of from twenty to thirty feet in warm, moist climates.

Could Seals Live in Fresh Water?

They could and do live in fresh water, not only at the London Zoo, but at liberty in that immense fresh-water inland sea, Lake Baikal, in Southern Siberia.

How Many Eggs Does an Oyster Lay?

This question has already been dealt with, but since that date a new estimate has been published by Professor John Eyre, an expert, and he gives the number of eggs as about 16 millions a year!

Which Animal Has the Best Teeth?

All animals have teeth perfectly fitted to the task they have to perform. The most remarkable seem to be those of the hyena. These are so sharp that they can cut paper like scissors and crack the leg-bone of an ox.

How is it That Hot Water but Not Dry Heat Kills Frogs?

It is true that water at 102 degrees kills a frog, while a tree-frog thrives in sunshine with a temperature of over 120 degrees. But in the air the frog keeps itself cool by evaporation of moisture from its skin; in water it cannot, so must die.

Are There Natural Screws? Certainly there are. The horns of many animals, the shells of sea creatures, the twisted stems of many flowers, and fir cones are all examples of natural screws. Pictures of many of these are given as illustrations to an interesting article on the screw in this month's My Magazine—the C.N. monthly—now lying on the bookstalls with this paper.

ECLIPSE OF A STAR

BLOTTED OUT BY THE MOON

Interesting Event that May be Watched Next Week

WHY THE LIGHT IS NOT BENT

By Our Astronomical Correspondent

If fine, next Friday evening will afford an opportunity of seeing a star pass behind the Moon.

This star, Alpha in Cancer, is unfortunately not very bright, being about the fourth magnitude, and as the Moon will be gibbous—that is, between first quarter and full—her light will make it almost imperceptible. With the aid, however, of a small telescope or opera-glasses the event may be observed.

The disappearance of the star behind the Moon, or its occultation, as it is called, will take place at 19 minutes past seven, when it will instantaneously vanish. It will be blotted out by the dark part of the Moon, which, of course, is invisible to us and indistinguishable from the sky, so it will look as if the star suddenly ceased to exist.

Star Approaches the Moon

Alpha in Cancer, or Alpha Cancri, should be looked for about an hour before, when it will be more easily seen, about the Moon's width away to the east of our satellite.

As it travels over a space almost equal to its own width in an hour, it will soon reduce the distance, and will be seen to get closer to the lower half of the Moon, about midway between the centre and southern points of the left-hand side of her disc.

As 7.19 approaches a watch should be kept continuously, and observers should allow for possible slight inaccuracies in local time, remembering that at the time of disappearance the star will be a little way from the bright part of the Moon.

A Simple Experiment

This instantaneous vanishing of the star is one of the best evidences we have that the Moon has no appreciable atmosphere; for if she had the star would gradually get dimmer and change colour as it approached the Moon's edge, its light having to pass through the lunar air. Moreover, the spectrum of the star would be changed by passing through the atmosphere.

Again, the time of disappearance would alter owing to the refraction that such an atmosphere would cause, and the star would remain visible after it should have vanished and reappear much sooner than it should.

This curious bending of light, due to refraction, can be easily demonstrated by placing, say, a halfpenny at the bottom of an empty basin five or six inches deep. Then we must get a jug of water, and, standing so that the coin is just hidden from view by the rim of the basin, pour the water in slowly and gently, taking care not to move the halfpenny. As the basin fills up the coin appears out of its true place.

If the Moon Had an Atmosphere

This is how the star would appear deflected from behind the Moon's rim if she had an atmosphere. Of course, a very rarefied atmosphere may exist so close to its surface as to affect the star so little as to be immeasurable.

Though astronomers are divided upon the subject, there is evidence that a very rarefied atmosphere may exist as a kind of mist in the Moon's deep crater hollows, appearing at lunar day-break and continuing during the Moon's long day of 370 hours.

Some observers, however, claim to have seen the development of green vegetation ere the coming of the intense cold of the long lunar night, a cold far exceeding anything on earth. G. F. M.

LOST IN THE TRAIN

The Missing Title-Deeds
of Medland School

Told by T. C. Bridges,
the C.N. Storyteller

CHAPTER 66

Bad News

THE big clock ticked on steadily, and the minute hand was drawing near to eight, when quite suddenly the outer door opened and in hurried a figure wrapped in a streaming mackintosh. The boys sat gaping open-eyed, for of all the visitors who could have been possibly expected this was the last whom anyone would have thought of.

It was Miss Morland herself. "Robert! Robert!" she exclaimed, as she hurried across to her brother-in-law, and her voice was broken with excitement and tears. "Oh, the poor boy!"

The Doctor came striding toward her.

"What is it? Has anything happened to Last?"

"I—I don't know, Robert, but I fear so. Oh, I am terribly afraid!"

From under her wraps she produced a letter, which she handed to the Doctor, and he, taking it hastily, held it to the light and read it through.

Both he and Miss Morland, it was clear, had absolutely forgotten the boys, and the boys themselves sat like mice, hardly breathing, all feeling that they were watching something dreadfully serious.

Dicky saw the master's face quiver.

"Good Heavens!" he gasped below his breath. "But this is terrible!" Then he pulled himself together. "Come to my study, Ruth. Boys, go to your dormitories. And keep order, please, among yourselves."

He started out through the inner door with Miss Morland, but at the door he stopped and turned.

"Dent, you come with me. Yes, and Burland."

Dicky and Tom rose from their places, and, followed by scores of wondering eyes, went out after the Doctor and Miss Morland.

CHAPTER 67

Joe's Letter

THE moment they reached the study the Doctor closed the door, and pulled up a chair to the fire for his sister-in-law.

"Ruth," he said, "I have asked these two boys to accompany us because they know more of the details of this distressing business than any others in the school, and because I find that they have spent the whole of their spare time since the beginning of term in constant efforts to recover your property."

"Oh, these wretched deeds!" cried Miss Morland. "I can hardly bear to think of them!"

Dicky and Tom stared. From Miss Morland such a speech was startling, to put it mildly.

Dr. Fair turned to Dicky.

"Dent," he said, "this letter which Miss Morland has received is from Last. And it solves the puzzle of his connection with the disappearance of the deeds."

"May I tell them, Ruth?" he asked.

"Yes—yes!" she said quickly.

"Then I will read it."

"Dear Miss Morland"—the letter began—"I am sending you back the deeds which were in your bag. I got them from Janion. Never mind how. I can't have other chaps getting into a row for what's my fault, so I am going to tell you the whole thing."

"When the accident happened to the train I went back to see if I could help. I found your bag hidden behind a little bush close to the line, and I picked it up and opened it to see whose it was. Then I saw the loose notes in it. I wanted money. I can't tell you

why, but I wanted it worse than I can say.

"On the spur of the moment I stuffed the notes into my pocket, and dropped the bag where I had found it. Then I went straight to the school. It was not till the next day that I found out whose the bag was, and then it was too late. I had used most of the money."

"Then Janion tackled me. It was he who had taken the bag out of the carriage and hidden it where I found it. He tried to make me hand over the money I had left. Of course, I told him he wasn't going to have it. I defied him because I knew he couldn't say anything, or he would have gone to prison."

"Dent and Burland will tell you what happened afterwards. They're good chaps, and if Dent was a bit careless in the train I hope you won't blame him any more, for he has done all he could, and so has Burland."

"Now you have got the deeds I hope you'll let the chaps see their sisters' again. I enclose four pounds—all I've got left of the money. The rest I promise I'll send you some time or other. I'm going off now to look for a job and see if I can make it."

"I'm not coming back to the school to be expelled, as, of course, I deserve to be. All I ask is that you won't let Mother know that I'm a thief. The disgrace would kill her. Yours truly, JOE LAST"

"Oh, the poor boy! The poor boy!" said Miss Morland again; and the tears were running down her cheeks.

The Doctor stood frowning sadly over the letter.

"But what did he want the money for so badly?" he said. "I can't imagine anything that would have driven Joe Last to theft."

"Then I can tell you, sir," said Tom Burland sturdily. "No, Dicky"—as Dicky moved sharply; "it may be sneaking, but I'm going to tell. It's only fair to Joe."

"It was his brother, sir—Philip Aylmer. Philip was frightfully in debt at Sugg's, and Joe took the money to pay it off."

Dr. Fair's face changed. "I might have known it!" he exclaimed. "Good gracious, how blind and foolish I have been! I ought to have guessed!"

"I see—I see!" said Miss Morland quickly. "Yes, that is it, of course. Philip is weak and self-indulgent, and Joe has been shielding him all through."

She paused a moment.

"Robert," she went on forcibly, "the thing to do now is to find Joe and bring him back—at once. It must be done—before the police get hold of his story. And he must come back, and no one but ourselves need know a word of this business."

"Quite so, Ruth. I entirely agree with you," replied the Doctor. "But the question is—where is he? We know now that he was not hurt by Janion, but we also know that he has gone—run away. We may be sure he has not gone home, but there are half a dozen other directions which he might conceivably have taken."

"He must have kept the road, sir," said Dicky. "It's too dark for anyone—even Joe—to go across country."

"That is true, Dent," agreed the Doctor. "Then he has either gone up or down the valley. Well, we have searchers out in both directions. We can only trust that they will find him. For ourselves, I fear that we can do nothing more than has been done."

There was silence a moment, then Miss Morland spoke.

"Robert," she said unhappily,

"I feel as though I had been to blame for all this. No, do not interrupt me. I am to blame. I was more angry than I had any right to be about the loss of my bag."

She turned to Dicky. "And you, too, Dick. I was harsh with you—quite unreasonably harsh—but I promise that I never will be again. This has been a lesson to me. You must come and see Cicely tomorrow."

Dicky went rather red. It almost frightened him to have the stately Miss Morland apologising to him.

"Thank you very much, Miss Morland," was all he could find to say. And then the Doctor broke in.

"You boys must go to bed," he said decidedly.

CHAPTER 68

How Joe Came Back

IN their dormitory they found the boys in bed, but the lights were still on, and not one of them was asleep. They were all far too excited to think of that. Everyone was talking, and the disappearance of Joe Last was the one topic of conversation.

As Dicky and Tom entered the room, Dicky heard Calvert's harsh voice.

"If you ask me, Last hooked it to save being expelled. I always thought that it was he who collared that bag of Miss Morland's."

Dicky went white with anger, but before he could speak Tom had stepped in front of him.

"Oh, did you?" he asked, sharply. "Then, if that's the case, what made you say it was Dent and me?"

For a moment Calvert was too much taken aback to answer, but only for a moment.

"You were in it with him, of course," he sneered.

There was dead silence in the room. Everyone was watching the two boys.

"You're telling lies, Calvert," replied Tom in the same cool, direct tone. "If you really thought so, why did you try to buy the bag from Janion? And why did you sneak into the Swallet Hole and let Janion loose that Sunday night? Tell me that!"

"Let Janion loose! I don't in the least know what you're talking about."

"Oh, yes, you do! Dent and I can prove it, Calvert."

The bully's heavy face went oddly yellow.

"You can't!" he snarled.

"But we can!" said Dicky. "Look at this button, you chaps," as he took a button from his pocket and held it up. "Look, all of you! Doesn't that come off Calvert's overcoat?"

THE "BEST WAY" BOOK OF ANIMAL TRANSFERS ON SALE TODAY

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Mother will find it ever so easy and fascinating to work these jolly little animal embroidery transfers on the clothes of the tiny tots, who will simply love them. The BEST WAY ANIMAL TRANSFER Book contains five big double sheets of transfers altogether, and is without a rival.

Price 6d. Of all newsagents and bookstalls

"Yes, rather!" said two or three at once.

Calvert seemed to shrink. For once in his life his ready tongue deserted him.

He had an amazing faculty for wriggling out of tight corners; but Dicky's quickness in recognising the tell-tale button had taken him completely by surprise. He had nothing to say. Dicky went on remorselessly.

"You had your innings, Calvert, and we didn't say anything. And I'll allow you gave us a bad time. Now it's our turn. Tom and I can prove that you've been working all this term to get Last into trouble just because you hate him. And I give you fair warning that if you try it again, Tom and I will tell all we know. You hear?"

Again there was silence, while outside the rain drummed steadily.

Before anyone could speak again there was a clatter of feet on the stairs, the door burst open, and there in the opening stood Joe Last himself.

He was covered with mud, and the water was running off him. There was a red smear of blood down one white cheek. He looked so dreadful that the boys stared at him breathlessly, hardly knowing whether he were a ghost or his real self.

"Dent!" gasped Joe, clinging to the doorpost. "Go to the Doctor! Tell him the Deadwater Dam has burst! The flood's coming down! I—I have warned the village, but there's Warley. I—I'm done!"

He staggered as he spoke, and Tom was just in time to catch him.

"Go quick, Dicky!" snapped Tom. "We'll look after him." And Dicky fled like a hare.

He never stopped to knock at the Doctor's study door, but flung it open.

Miss Morland was still there, seated in a chair by the fire, with Dr. Fair sitting opposite.

"The dam's gone!" burst out Dicky. "Last's back! He told us!"

Miss Morland was out of her chair almost before the Doctor.

"The Deadwater Dam! Good heavens! Then the water will be over Mapleton and it will reach Medland! Come, Robert!"

She had pulled on her coat in a moment, and she and the Doctor ran out together.

Dicky did not wait for leave. He followed them out into the quadrangle.

It was still raining, but not so hard. All three made for the gate at a run. It was locked, but luckily the Doctor had his key. As he opened it there was a sound of a motor engine, and a glare of headlights came blazing round the corner.

Next instant a car pulled up, and there in the driving seat was the long, lean form of Professor Perrin, with the rain streaming off his black oilskin coat and sou'-wester.

"You know!" he said. "Last's told you, I suppose! Jump in! We ought to be just in time!"

They did not wait for a second invitation. The Doctor and Miss Morland got in behind, Dicky leaped up beside the Professor, and at once the car darted forward.

"As plucky a thing as ever was done!" jerked out the Professor, as the car roared on down the road. "That boy Last has saved the lives of scores of people this night and thousands of pounds' worth of property into the bargain. Why, they hadn't even got the lock gates open at Mapleton Mill till he warned them!"

"How did he do it, sir?" asked Dicky eagerly.

"Collared a bicycle from a cottage up in Crosscombe, and did those five miles in the mud and rain and blackness in a little less than twenty minutes. And he dead beat before he started! But don't talk, lad. I've got to drive, and it's no joke in this darkness."

TO BE CONCLUDED

Five-Minute Story

Marmalade

"I HATE pigs," said Frank, grumpily.

Lena laughed. "You're thinking of Alfred," she replied.

Frank hunched his shoulders. "Of course I am. I wish he wasn't coming to tea this afternoon."

"Mother says he must," sighed Lena, "so I suppose it can't be helped. What shall we play at now?"

"Uncle Fred is coming directly. Perhaps he'll think of something," suggested Frank.

The door opened to admit Rose, the maid, who brought the schoolroom meals. After arranging the cakes and scones she went out, telling the children she would bring the tea-pot when Master Alfred came.

"He's late," said Frank. "It would serve him right to eat everything up. And look, Lena; it's our new pot of marmalade! He'll eat the lot! Let's put some out in that glass dish thing and hide the pot."

Quick as thought, the marmalade was spooned out and the half-filled pot slipped into the cupboard. Frank hid it, and when he got up from his knees he was laughing.

"Let's have a joke," he whispered, holding out a pot of mustard, "and mix this in the marmalade."

Lena clapped her hands.

Hardly had the mixing been carefully done than came Alfred. He grinned at sight of the tea-table ready, laid,

"Good," he said, "I'm very hungry."

Frank beamed. "Have some marmalade," he urged as Lena poured out the tea.

"Presently," said Alfred. "I like finishing with that. More cake, please."

Just then the door opened, and in came Mother and Uncle Fred.

"Hallo!" said their uncle. "I came in to give you two shrimps your Easter tips. Dear me! You look very cosy. Got room for a very old boy, eh? Come, Mary, I should much prefer tea in here."

So Frank brought chairs, Lena bustled over her tea-making, while Alfred cut himself another slice of cake.

"I'll have some of that good-looking marmalade," said Uncle Fred.

Frank looked worried.

"The cake's much nicer," he pleaded. But Uncle Fred only laughed, and helped himself to marmalade. One mouthful was enough. He must have got an extra dose of mustard, and it nearly choked him.

"The stuff's bad!" he roared. "Poisoned! Filthy!"

Alfred calmly took the last piece of cake.

"Frank and Lena thought you might come to tea so they put mustard in the marmalade," laughed the horrid boy.

Alas! It looked all too true! Uncle Fred believed Alfred, the hateful little eavesdropper!

And he left no tips!



The Leaves Will Soon Be Green Again



DR. MERRYMAN

THE successful author was being interviewed.

"And were you a smart boy when at school?" asked the interviewer. "Yes, very!" he replied. "I was the best in my Form at making up excuses for not being able to answer the master's questions."

A Wonderful Pet

THERE once was a man of Samoa Who had as a pet a jerboa, And he said, which we doubt, When the creature went out That it galloped and swam to Algoa.

Is Your Name Billings?

THE surname Billings, like many other names of the same kind, has developed from a nickname—in this case Bill, a shortened form of William.

WHEN is a sailor not a sailor? When he's aboard.

Changed Word

I AM a vessel; change my head, and I am a man's name; change it again and I am an article used by ladies; change again and I am a cooking utensil; again, and I am an action; again, and I am brown; again, and I am a vehicle; again, and I am pale.

The Jungle Football Match



MR. RHINO wins the toss for his side.

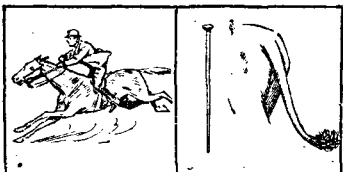
Indiscriminate

A FEW weeks ago it was mentioned in these columns that the word indiscriminate contains the letter i no fewer than five times.

Many readers have sent in further examples containing five i's, including invisibility, invincibility, and divisibility; while indivisibility, although having only fourteen letters in all, has no fewer than six i's.

A Wise Eastern Saying
IN talk he's a wonder,
But small are his gains.
How loud is the thunder!
How little it rains!

Puzzle Birds



What birds do these two pictures represent? Solution next week

WHY were gloves never meant to sell?
Because they were made to be kept on hand.

A Smile Worth While

THERE was a most knowing young gnu Who always said, "How do you do?" And he smiled then, meanwhile, Such a heavenly smile, He turned all the heads at the Zoo.

Very Slow

HE was an American of the hustling type, and the speed of his six-cylinder car was excessive. As he passed through the village the arm of the law was extended, and he came to a stop. "Didn't you see that large notice, 'Dead slow'?" demanded the policeman.

"Sure, I did!" replied the hustler. "But I thought it referred to this little town of yours!"

ADD half a score to nothing and what animal do you get?
OX.

Cause and Effect

JOHNNY saw a jar of cream—on the shelf;
Thought he'd like to eat it all—by himself.
Soon the cream was gone, and he—lay to sleep;
But his mother found him all—in a heap.
"Deary me! Oh, deary me!"—Johnny cried.
"What an awful pain I've got—right inside!"

ANSWERS TO LAST WEEK'S PUZZLES

How Much Did Each Receive?

One cake, half a cake, and a quarter of a cake, as there were only three people, the piper's wife being the fiddler's mother.

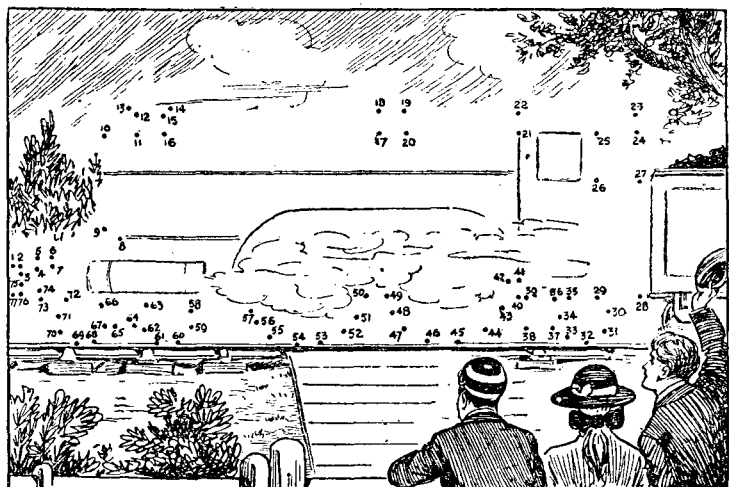
Puzzle Tongue-Twister

Peter Piper picked a peck of pickled pepper.

Who Was He?

The vain commander was Pompey

Puzzles That Answer Themselves



Draw a line from dot number one through the other dots in order to number 77. You will then see why the boys and the girl cannot continue their walk.

Jacko Meets an Old Friend

IT was all very well to play carrier when you had well-behaved stuff like coal and flour on board. But Jacko hadn't reckoned on a live bird. And such a cheeky one, too!

If that parrot had been nearer his own size Jacko would have fought him tooth and nail before they had gone a hundred yards.

"The sooner I get you to your precious Aunt Susan's," he remarked, when Horace had been making some uncomplimentary remarks on the size of Jacko's ears; "the better I shall be pleased."

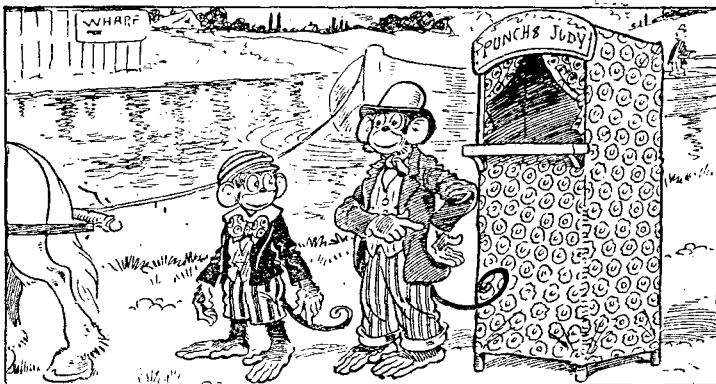
"Hallo!" interrupted a voice behind him. "Hi, you with the barge! Have you got any room for my stuff here? I want it carried into the next village."

Jacko turned, and was surprised to see a man, with a dog at his side, leaning up against a smart Punch and Judy show. The man tapped the woodwork and laughed.

"It's a great, clumsy thing," he admitted, "but it isn't heavy."

"I don't know about your show," said Jacko, "but I'll take the dog." Jacko adored dogs.

"You'll have to take Toby," replied the man, "to mind the



"Got any room?" asked the man

things. You can drop 'em on the bridge," he explained. "Toby'll look after 'em till I get back. Here's sixpence for you," he added, pulling a coin out of his pocket; and before Jacko could stop him he had picked up the "show" and dumped it on the barge.

"Let 'em all come," shrieked the parrot.

"Be quiet," snapped Jacko, "or I'll fling you overboard."

"Nice boy! Mother's little treasure!" teased the parrot.

But Jacko wasn't listening. He was staring at Toby, who was jumping round him and licking his hands as if he had found an old friend.

"You seem to know me, old chap," said Jacko, pulling his ears playfully, "and, 'pon my word, I'm not so sure that I don't know you. If you hadn't got that ridiculous frill round your neck," he declared, "you'd be uncommonly like old Bouncer."

He had no sooner said the word Bouncer than the dog jumped up and began barking furiously.

"It is Bouncer," cried Jacko. "You young rascal! I often wondered where you got to." For since that day when the police came and frightened Mother Jacko half out of her life they had never set eyes on him.

"Nearly got Dad locked up, didn't you?" said Jacko. "Who stole the meat, eh?"

Toby didn't seem at all embarrassed by the subject. He continued to wag his tail and bark and jump around, and he made such a fuss that at last Jacko picked him up and tossed him on to the barge.

But he wasn't there long, for Horace set up such a yelling you would think he was being killed.

"Take him away!" screamed the parrot. "Take the brute away! He'll eat me!"

"No, he won't," said Jacko, lifting him down again. "He can't get at you, stupid. You keep a civil tongue in your head," he added with a wink, "and I'll see he doesn't hurt you."

The paragraph on the right is a French translation of the paragraph on the left

Luminous Baton

A Belgian inventor has designed a police baton for use in controlling the traffic of busy streets which has an electric lamp at the end, lighted when necessary by means of electric batteries in the interior of the baton.

The brilliant little electric lamp not only forms a useful sign at night or in foggy weather, but its light also makes the policeman visible to pedestrians and drivers.

Le Bâton Lumineux

Un inventeur belge a confectionné un bâton d'agent de police pour servir à contrôler la circulation dans les rues animées, lequel porte à son extrémité une lampe électrique qui fonctionne, quand il le faut, au moyen de piles électriques placées dans l'intérieur du bâton.

Non seulement l'éclat de la petite lampe électrique sert de signal la nuit ou dans le brouillard, mais aussi sa lumière rend l'agent visible aux piétons et aux cochers.

Tales Before Bedtime

The Mouse

IT was a very tiny mouse. But it made a big noise.

The children heard it while they were waiting for their governess in the schoolroom.

"It's over there," said Teddy; "behind the bookcase."

"Hush!" whispered Mab. "It's coming out. Look! I can see its head."

"I can see its tail," Teddy whispered back.

And the next minute out came the little creature. It scampered across the room and disappeared behind the scuttle.

The children jumped up.

They chased it out into the middle of the room again, and then the little thing made a rush and sprang into a boot that lay by the fireplace.

Quick as lightning Teddy pounced on it and closed up the opening.

Mab clapped her hands. "Button the buttons," she cried, "and then it can't get out."

Just after that they heard their governess coming, so they hid the boot and ran back to their places.

Before lessons were over there was a great shout of joy, for Uncle Jim's car could be seen gliding up the drive.

The children left their books and dashed out to meet him, and of course the mouse was forgotten.

"Get your things on," was almost the first thing their uncle said. "I've come to take you all for a run."

Mother was as delighted as Teddy and Mab.

"Fetch my boots, children," she said. "I left them in the schoolroom."

Teddy looked at Mab, and they both burst out laughing.

But they fetched the boots



Out it came

and watched while Mother pulled at the buttons.

Suddenly she gave a shriek. And no wonder, for out jumped the mouse!

"You dreadful children!" she cried. "What a fright you gave me! You deserve to be whipped."

But she soon began to laugh with the others, and presently they were all rushing along the beautiful lanes in the sunshine in Uncle Jim's new car.

The Children's Newspaper grew out of My Magazine, the monthly the whole world loves. My Magazine grew out of the Children's Encyclopedia, the greatest book for children in the world.

CHILDREN'S NEWSPAPER

March 4, 1922

Every Friday, 2d.

The C.N. is posted anywhere abroad for 11s. a year; inland, 13s. My Magazine (published on the 15th of each month) is posted abroad for 14s.; Canada, 13s. 6d.; British Isles, 14s. 6d. See below.

PEASANT ON A POSTAGE STAMP · EUROPE'S CAMELS · MONKEY IN A HOSPITAL



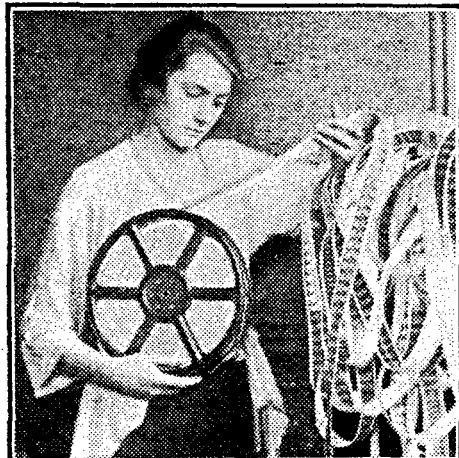
Northern Turf for the South of England—The new international tennis court at Wimbledon is being laid with turf transported from Solway, in the North of England, and here we see the turf being cut in readiness for its journey to London



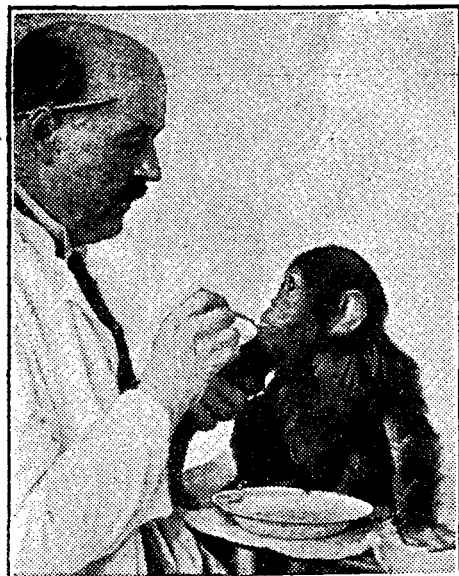
Peasant Girl on a Stamp—For the first time a peasant's portrait is to appear on a postage stamp, and this Bohemian girl will represent her country's national type



Camel Transport in Russia—Ordinary methods of transport have broken down in Russia, and strange sights are seen today in the famine areas, where even camels are used to draw sleighs over the snow-covered ground and carry supplies to the peasants



Kinema for the Home—In this new kinema for the home the picture is produced by reflection from a fireproof paper film. See page 5



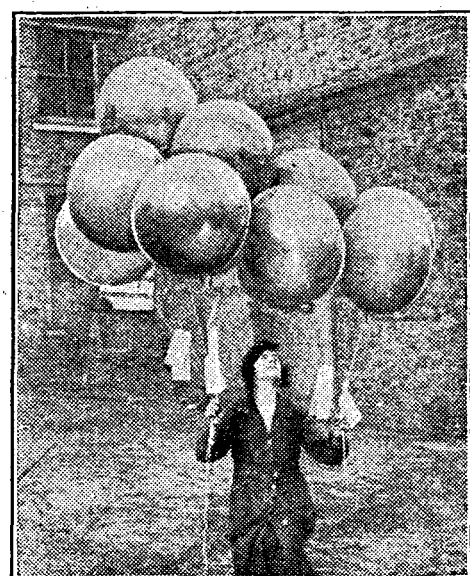
Monkey in a Hospital—This chimpanzee has been for three months in a children's hospital in Berlin, where he has been treated as if he were a human child. He has now recovered



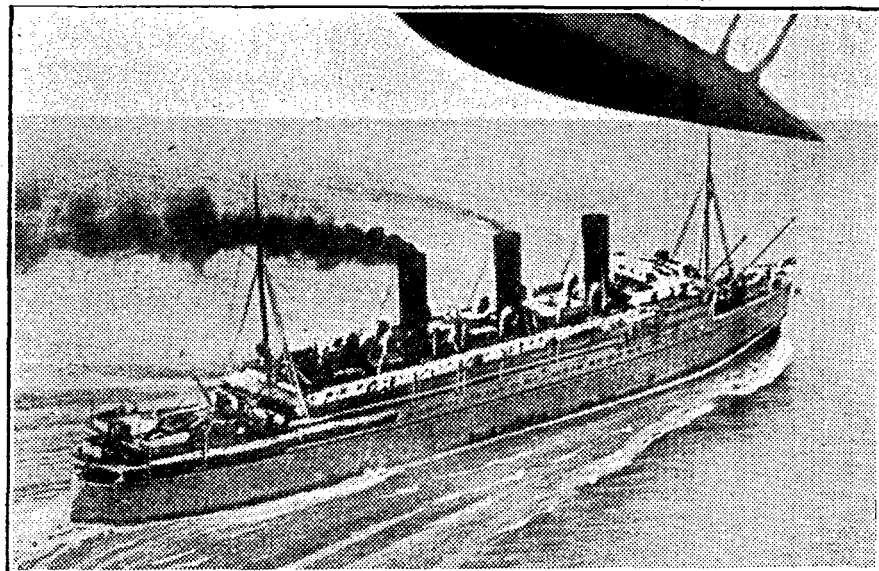
The Little Middy Salutes the Big Guardsman—Little Francis Dolezel, who has given Princess Mary a wedding present of Bohemian glass, went to Buckingham Palace to deliver it himself. He was delighted with the kind way the Princess received him, and as he left the Palace, dressed as a midshipman, he saluted the big Guardsman at the gate



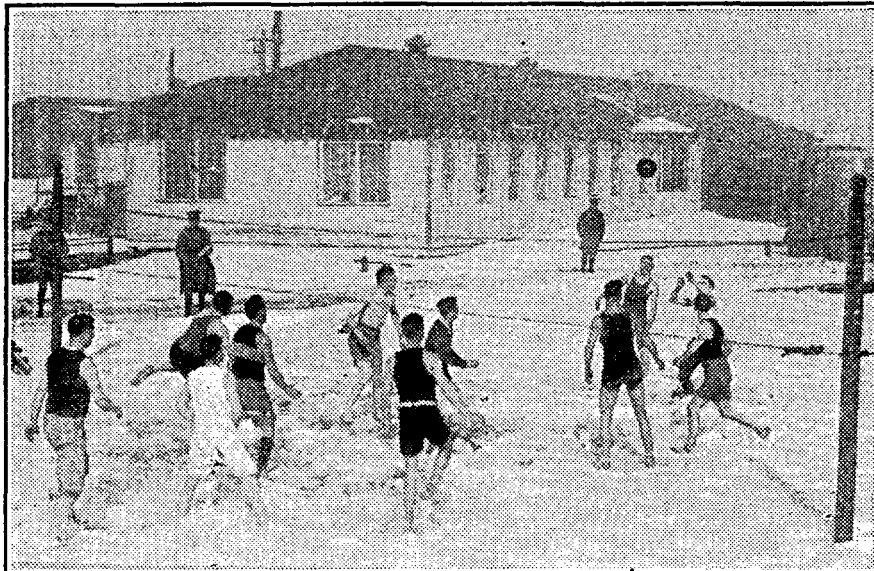
A Big Handful of Puppies—These pretty little Pekingese puppies, which were prize-winners, were greatly admired at a recent dog show in London



Messengers Through the Air—Experiments have been made to see how far toy balloons will carry messages. These balloons are being released in London, from which some have travelled to Copenhagen



Airmen Watch for Smugglers—A liner entering Vancouver Harbour escorted by a Canadian Customs aeroplane, which watches to see that contraband goods are not thrown overboard to smugglers' boats. The photograph was taken from the aeroplane, one of whose floats is seen



How American Officers Keep Fit—The officers of the American Army at Washington have been keeping fit during the cold weather by playing ball in the snow. Here we see them at their game, and, though barefooted, they seem to be thoroughly enjoying themselves